

APPENDIX TO THE FIRST REPORT

OF THE

IRISH MILK COMMISSION, 1911

MINUTES OF EVIDENCE

(Taken in Dublin, Belfast and Newry, 29th November, 1911, to 1st March, 1912, inclusive).

WITH INDEX.

Presented to Parliament by Command of His Majesty.



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CONTENTS.

	Page
Warrant appointing the Commission, and Supplemental Warrant,	iii
List of Witnesses,	iv
Places and Dates of meetings of the Commission,	vi
List of Appendices,	vii
Minutes of Evidence,	1
Appendices,	359
Index to Evidence,	367

WARRANTS APPOINTING THE COMMISSION.

Copy.

BY THE LORD LIEUTENANT-GENERAL AND GENERAL GOVERNOR
OF IRELAND.

ABERDEEN.

WE, John Campbell, Earl of Aberdeen, Lord Lieutenant-General and General Governor of Ireland, hereby nominate and appoint:—

PATRICK J. O'NEILL, Esquire, J.P., Chairman of the County Council of the County of Dublin;

Sir JOHN LENTAIGNE, F.R.C.S.I.;

GEORGE A. MOORHEAD, Esquire, F.R.C.S.I.;

ALEC WILSON, Esquire, of Belvoir Park, Belfast;

DERMOD O'BRIEN, Esquire, President of the Royal Hibernian Academy;

JOHN R. CAMPBELL, Esquire, B.Sc., Assistant Secretary in respect of Agriculture of the Department of Agriculture and Technical Instruction for Ireland,

ALBERT E. METTAM, Esquire, M.R.C.V.S., Principal in the Royal Veterinary College of Ireland;

Lady EVERARD, of Randlestown, Navan; and

MISS MARGARET MCNEILL, Assistant Inspector of Reformatory and Industrial Schools, Ireland,

to be a Committee to inquire into the alleged scarcity in the supply of Milk in some parts of Ireland, and to report upon the causes of the deficiency, where it exists, its effects upon the public health, and the means whereby the deficiency can be remedied; and also to inquire into and report upon the dangers of contamination and infection in the present Milk supply, and the methods best adapted to guard against these dangers.

We further appoint the said Patrick J. O'Neill to be Chairman of the Committee.

Given at Dublin Castle the 8th day of November, 1911, by His Excellency's Command.

J. B. DOUGHERTY.

BY THE LORD LIEUTENANT-GENERAL AND GENERAL GOVERNOR
OF IRELAND.

ABERDEEN.

WHEREAS We, John Campbell, Earl of Aberdeen, Lord Lieutenant-General and General Governor of Ireland, did by Warrant bearing date the 8th day of November, 1911, appoint Patrick J. O'Neill, Esquire, J.P., Chairman of the County Council of the County of Dublin; Sir John Lentaigue, F.R.C.S.I.; and the several gentlemen and ladies therein mentioned to inquire into and report as to certain questions affecting the supply of Milk in some parts of Ireland;

AND WHEREAS one of the Members of the Committee so appointed, namely, Sir John Lentaigue, has tendered to Us his resignation of his appointment as one of the said Committee;

Now We do appoint Sir Stewart Woodhouse, M.D., to be one of the Committee for the purpose aforesaid in the room of the said Sir John Lentaigue, resigned, in addition to and together with the other members of the Committee whom We have already appointed.

Given at Dublin Castle the 2nd day of January, 1912, by His Excellency's Command.

J. B. DOUGHERTY.

LIST OF WITNESSES

Page.	Name of Witness.	Capacity in which Witness gave evidence.
A.		
274 34	AGNEW, DR. SAMUEL, M.A. ANDERSON, R. A.	Medical Superintendent Officer of Health, Lurgan. Secretary to the Irish Agricultural Organisation Society.
B.		
219 & 265 258 321 279	BAKER, DR. H. W. BAKER, SAMUEL, M.R.C.V.S. BACROFT, MISS MOLLIE BAXBY, JOHN MCCLURE, M.R.C.V.S.	Medical Superintendent Officer of Health, Belfast. Veterinary Inspector, Newtownards Rural District. Secretary to the Newry District Nursing Association. Veterinary Inspector to the Belfast and Castlereagh Rural District Councils.
70 89 & 90 248 290 340	BARRY, REV. ROBERT BARTER, SR. RICHARD BELL, DR. ELIZABETH BELL, WILLIAM A., J.P. BELL, WILLIAM E.	Parish Priest of Glenties, Co. Monaghan. Representing the W.N.H.A., Belfast. Chairman of the Belfast Rural District Council. Clerk of Nos. 1 and 2 Newry Rural District Councils, and Hon. Sec. to the Newry Agricultural Show.
100 251 93 60	BORRERESCH, DR. OTTO BRATMAN, NORM BROWN, DR. ROBERT BRYCE, H. C.	Representing the W.N.H.A., Belfast. Medical Officer of Health, Rathfriland Urban District. Chief Land Improvement Inspector under the Commissioners of Public Works, Ireland.
C.		
9 & 39 300 371 179 336 283 316	CAMERON, SR. CHARLES, C.B., M.D., F.R.C.S. CANNON, THOMAS CLARK, JAMES L. CLUNE, PATRICK CONNOLLY, JAMES COVATTA, RICHARD T., M.R.S.I. COWENY, WILLIAM J., J.P.	Medical Superintendent Officer of Health, Dublin. Dairy Farmer, Rathfriland, Co. Down. Clerk to the Ardrin Rural District Council. Inspector of Live Stock under the Department of Agriculture, Dublin. Dairy Inspector, Newry Urban District. Dairy Inspector, Banque Urban District. Chairman of the Month Rural District Council, and representing the Ballinacorney Branch of the Month Labour Union.
288 138 342 142	CRENSWELL, W. E. CRONIN, J. J. CRONIN, WILLIAM CUGGINAN, MRS. M. J.	Cowkeeper and Butcher, and Milk Vendor, Belfast. Milk Parveyor, Dublin. Town Clerk, Newry. Of Trim, Co. Meath.
D.		
182 65 90	DADD, J. RALPH, DR. EC., F.R.C.D. DUNNORTH, LARRY DUNLOP, J. E., M.R.C.V.S.	Clerk of the Ballynaglass No. 1 Rural District Council.
E.		
202	ENGLEISH, THOMAS	Wholesale Milk Distributor, Belfast; and Member of the Belfast Corporation.
F.		
202 82 264	FALLA, THOMAS, J.P. FANCUTT, FREDERICK P. FLOOD, JOHN	Clerk to the Rathfriland Urban District Council. Dairy Inspector, North Dublin Rural District.
G.		
270 & 302 172	GREGG, JAMES, M.R.C.V.S. GIBSON, JAMES SCOTT	Veterinary Inspector, Ballywood Urban District, and Member of the Belfast Corporation. Deputy-Assistant Secretary and Chief Agricultural Instructor in the Department of Agriculture, Ireland.
H.		
303 105 140 124 264	HARRIS, JOHN G. HAYES, JOSEPH, J.P. HAYES, MISS HENRIETTA M. HEWITT, R. W. HOLMES, JAMES	Chief Assistant to the Town Clerk, Belfast. President of the Dublin Cowkeepers and Dairywomen's Association, Dublin. Sanitary Sub-Officer, Rathfriland Urban District. Agriculturist, Jerrystown, Co. Antrim. Clerk of the Newtownards Rural District Council.
J.		
226	JORDAN, JAMES A., M.R.C.V.S.	City Veterinarian, Belfast.

LIST OF WITNESSES—continued.

Page.	Name of Witness.	Capacity in which Witness gave evidence.
K.		
339 147	KRAN, DR. J. J.P. KENNEDY, E.	Representing the Newry Urban District Council. Castle Breckin, Coe Dublin and Kildare.
L.		
198 97 278 149 343	LAFAN, DR. THOMAS, M.R.C.S.I. LAWRIE, R. H., M.R.C.V.S. LAWRIE, ALEX. J.P. LEACH, MISS MARTHA LEEDER, DR. JOHN	Cashed, Co. Tipperary. Veterinary Inspector, Rathfriland Urban District. Representing the Ardara Rural District Council. Kilsharada, Co. Galway. Physician to Secor's Hospital, and Chief Medical Officer to Guinness's Brewery, Dublin.
M.		
224 133 320 325 433 134 18 28 208 160 243	M'BRIER, JOHN M'CONNELL, H., M.R.C.V.S. M'CONVILLE, H. J., J.P. M'DERMOTT, JOHN M'EVOT, ARTHUR, J.P. M'GRATH, JAMES H. M'WERNY, Professor H. J., M.A., M.D. D.O., F.R.C.P.I. MASON, — Professor FÄRNER, C. M.R.C.V.S. MAXWELL, JOHN MAYO, THE COMPTONS of MONTGOM, H. ROBERT	Dairy Inspector, Bellfast. Veterinary Inspector to the Armagh County Council, and the Armagh Urban and Rural Districts. Chairman of the Newry Urban District Council. Manager and Secretary of the Witherspoon Co. Operative Agricultural and Dairy Society, Ltd., Co. Armagh. Home Butter Maker, Jarrettsparan, Co. Armagh. Dairy Inspector, South Dublin Rural District. Professor of Pathology, University College, Dublin. Veterinary Inspector, Rathdown Union, and Lecturer on Veterinary Hygiene in Dublin University, and under the Department of Agriculture. Dairy Inspector, Larne Urban District. St. W.N.H.A. Milk Depot at Naas. Farmer and Dairyman in Newtownards Rural District, representing the Belfast and District Wholesale and Retail Dairyman's Association.
N.		
312	NEALE, E. A.	Traffic Manager of the Great Southern and Western Railway, Ireland.
O.		
24 334 289	O'DONOGHUE, DR. JOHN O'HARE, PETER O'NEILL, DR. CHARLES	Medical Superintendent Officer of Health, North Dublin Rural District, and M.O.H., Clontarf. Farmer, Mayobridge, Co. Down. Medical Superintendent Officer of Health, Castlereagh Rural District.
P.		
206 228 208	PENFECT, Commander H. H. POLLACK, F. W. POWELL, ROBERT J.	In the Dairy business, Waterpoint, Co. Down. Clark of the Lurgan Urban District Council. Selector and Landowner, Bellfast District.
R.		
231 107 127 246 170 112	RAYNOLDS, HENRY L. RICHARDSON, J. D., M.R.C.V.S. RICHARD, MISS MARGARET ROSE, CHARLES ROSE, JOSEPH, J.P. RUSSELL, Right Hon. T. W., M.P.	Food and Drugs Inspector, and Sanitary Officer, Bellfast. Veterinary Inspector, North and South Dublin Rural Districts. Sanitary Sub-Officer, North Dublin Rural District. Milk Vendor, Bellfast, representing the Belfast and District Wholesale and Retail Dairyman's Association. Milk Producer and Purveyor, Dublin. Vice President of the Department of Agriculture, Ireland.
S.		
259 286 233 1 296 227	SOLTER, Rev. AGNES F. SOLTER, H. J.P. SMALL, F. H. SMITH, J. L. SOUTHERN, ROBERT SCHMIDT, Professor W. SE. C.	Parish Priest of Semfield, Co. Down. Representing the Dairyman of Bangor and District, Co. Down; Member of the Agricultural Council. Agriculturist, Poyntzparan, Co. Armagh. Principal Clerk, Local Government Board, Dublin. Of Cranha, Co. Antrim. Professor of Pathology, Queen's University, Belfast.
T.		
16 254 36 297 297 & 298	TANTON, W. K. THOMPSON, JOHN A., F.R.C.V.S., J.P. THOMPSON, Professor W. H., M.D. THOMPSON, Dr. ROBERT, M.B. TINKLE, Dr. ANDREW, D.P.R., J.P.	Chairman of the Committee of the British Goat Society. Veterinary Inspector of the Lurgan Urban and Rural Districts, and Meigs Rural District. Professor of Physiology, Dublin University. Chairman of the Public Health Committee, Bellfast. Member of the Belfast Public Health Committee.

LIST OF WITNESSES—continued.

Page.	Name of Witness.	Capacity in which Witness gave evidence.
		V.
327	VON STRONG, Miss E.	Lady Superintendent of the County Down Infirmary and Newry Hospital.
		W.
136	WARREN, John, M.A.	Assistant Principal, Marlborough Street Training College, Glasnevin.
44 & 102	WARREN, ANDREW, M.B.C.V.S.	Chief Veterinary Inspector of the Borough of Dublin.
139	WARR, Dr. REGA.	Practising in Dublin.
344	WELLS, T. P.	Treasurer of the Newry Agricultural Show.
77	WELSH, A. POOLE	Inspector of Dairying, Department of Agriculture, Ireland.
305	WOOD, Dr. W. ATKINSON, M.D., M.S. (M.B.S.), D.P.H. (LONDON).	Practising in the City of Melbourne.
272	WRIGHT, Rev. W.	Presbyterian Minister at Newtownards, Co. Down, and Vice-Chairman of the North Down Agricultural Society.
		Y.
129	YOUNG, JOHN	Cowkeeper and Milk Vendor, Inchicore, Co. Dublin.

PLACES AND DATES OF MEETINGS OF THE COMMISSION FROM
18th NOVEMBER, 1911, TO 1st MARCH, 1912.

Dublin, 18th November, 1911.	Committee meeting.
" 29th and 30th November, 1911.	Evidence taken.
" 1st December, 1911.	"
" 8th, 9th, 11th, and 12th December, 1911.	"
" 5th, 6th, 8th, and 9th January, 1912.	"
" 12th, 28th, 29th, and 30th January, 1912.	"
Belfast, 19th, 24th, 15th, 16th, and 17th February, 1912.	"
Dublin, 28th February, 1912.	"
Newry, 29th February, 1912.	"
" 1st March, 1912.	"

LIST OF APPENDICES.

APPENDIX A. (page 359).—Circular letter issued by the Irish Agricultural Organisation Society to Managers of Co-operative Creameries as to the working of the Dairies, Cowsheds and Milkshops Order, 1908.

APPENDIX B. (page 363).—Return of Milk Traffic to Dublin on the systems of the
 Great Southern and Western Railway,
 Midland Great Western Railway,
 Great Northern Railway,
 Dublin and South-Eastern Railway,
 for a number of years.

APPENDIX C. (page 361).—Correspondence and Reports to the Department of Agriculture concerning the reception of dirty milk at Creameries.

APPENDIX D. (page 363).—Statement furnished by Mr. A. Poole Wilson, Instructor of Dairying to the Department of Agriculture, Ireland, as to the Milk production of Ireland, and the quantity absorbed by the Creameries.

APPENDIX E. (page 365).—Concerning the thermal death-point of pathogenic bacteria.

APPENDIX F. (page 365).—Rates of conveyance of Casks on the Great Southern and Western Railway.

MINUTES OF PROCEEDINGS AND EVIDENCE.

FIRST DAY.—SATURDAY, 18TH NOVEMBER, 1911.

The Commission met at No. 5, Upper Castle Yard, Dublin, to consider their course of proceedings.

SECOND DAY.—WEDNESDAY, 29TH NOVEMBER, 1911.

The Commission met at No. 5, Upper Castle Yard, Dublin.

Present.—P. J. O'NEILL, Esq. (Chairman); LADY EVERARD; SIR JOHN LENTAGNE, F.R.C.S.I.; ALICE WILSON, Esq.; J. R. CAMPBELL, Esq., B.Sc.; PROFESSOR A. E. METTAM, B.Sc., M.R.C.V.S.; DERMOD O'BRIEN, Esq.; GEORGE A. MOORHEAD, Esq., F.R.C.S.I.; and MISS MARGARET McNEILL.

S. W. STRANGE, Esq., Secretary.

MR. J. L. SMITH EXAMINED.

1. The CHAIRMAN.—Mr. Smith, I understand you are in the service of the Local Government Board?—Yes, I am principal clerk in the Public Health Department.

2. And in the discharge of your duties in that Department, I take it you are conversant with the Orders that have been issued by the Local Government Board with respect to dairies, cowsheds, and milk-shops?—Yes, that is so. In fact, I was associated with this particular work when the Order of 1908 was in the final stage of preparation.

3. Your Board have, from time to time, issued Orders dealing with this question?—Yes.

4. And a General Order, I understand, was issued in the year 1908, embracing most of the provisions that were found operative and useful in the Orders that had been previously issued?—I may say all the provisions, and, in addition to that, the provisions of the Model Regulations which previously to 1908 had been operative. It was mainly a consolidating Order.

5. Speaking generally, have you found that local governing bodies throughout Ireland co-operated with you in carrying out Orders issued by your Board?—I should say they have to a very large extent. The response has been very gratifying, having regard to the great difficulties the subject was attended with.

6. I suppose the matter was not free from controversy, and I suppose you have found contentious Boards that were rather slow to put your Orders into operation?—There was a small proportion, and we had finally to take a test case against one of the Rural Councils, which went to the Court of Appeal. The judgment of the Court was in favour of the Local Government Board. That was the case of the Kilmallock Council.

7. In the main, were the Orders issued by your Board imperative or permissive?—Well, the 1908 Order is imperative. It applies to all Urban and Rural District Councils. Only two specific duties in that Order are imposed—the duty of registration, and the duty of the appointment of officers; but we supplemented the clause relating to the appointment of officers by this General Order of 1909. That, in terms, is permissive. They may appoint an Inspector, but in special cases we have issued Mandatory Orders to individual Councils for the appointment of Veterinary Inspectors, and it was on that point the Kilmallock Council case turned, namely, the legality of the Mandatory Order.

8. Do you know of your own knowledge whether or not your Board, in the drafting of these Orders, have sometimes discovered difficulties owing to the limitation of the powers conferred on them by the Acts of Parliament under which the Orders are issued?—The difficulty which led up to the Kilmallock case was that it was a matter of doubt whether the two remain-

ing Sections of the Contagious Diseases Acts of 1878 and 1886, under which the Dairies Order was authorised and issued, really permitted the appointment of officers. We were doubtful about it in the drafting; but when we came to look into the question very closely, the decision was arrived at that there was no clear authorisation for the provision requiring the appointment of officers for the control of milk, and then we had to consider what legal authority there would be for the appointment of any officers by a local authority for carrying out the milk regulations, and income was then had to the general powers under Section 11 of the Public Health Act, which gives the Local Government Board the authority of deciding what officers shall be appointed by a Sanitary authority, and what their duties and qualifications shall be. It was on that question that this important decision of the Court of Appeal turned—whether in the consideration of Section 11 we could read in these two remaining sections of the Contagious Diseases (Animals) Acts of 1878 and 1886. Had the contention of the Board failed, the result would be that there was machinery for making regulations for the control of milk, but no legal authority for the appointment of officers to carry out the regulations.

9. That surely would be an anomaly?—The Court of Appeal decided that there was power under section 11 of the Public Health Act to appoint officers for the administration of the Dairies Order.

10. Under this Order of 1908, certain conditions are imposed with regard to the keeping of cows and the purveying of milk. Is the first instance, I see that it is made imperative that vendors of milk should be registered?—Yes, registered with the local authority.

11. What exactly does that convey?—It enables the local authority to know those persons who are engaged in this business, which is possibly fraught with danger to the public, and to keep them under observation by means of inspectors.

12. There is, of course, a difference between registration and licence?—Oh, certainly, an important difference.

13. Would you be good enough to explain how this difference between registration and licence would affect your powers?—Well, it affects the powers of the local authority in this way, that they are under an obligation under the terms of the Order to register, seeing that the cow-keeper is under a correlative obligation to register himself. If there was authority to licence, the premises could be inspected beforehand, and the cow-keeper would be only authorised to carry on this particular branch of trade if his premises were approved of. If, however, it was found that the premises were unsuitable, or that the cow-keeper was persistently

A

guilty of an offence under the Order they could withdraw the licence, and the men would no longer be in a position to sell milk.

14. That was exactly what I wanted to bring out. If you had power to issue licences, you would also have authority to make an inspection of the premises where the cows were kept and the circumstances under which they are kept?—I think that is scarcely correct. There is, of course, a power of inspection already, but the point is that if the results of inspections proved to be unsatisfactory, then the licence, if such were authorised, could be withdrawn, and the cows would be prevented from carrying on the trade of a cow-keeper. At present all that happens is—suppose he commits a breach of any of the regulations—he is subject to a penalty, but if he likes to pay that penalty definitely he can continue his trade and break the regulations as long as he pleases. With a licence, you can prevent a man trading.

15. But the regulation at the moment is not given under specific conditions?—No, because there is an express obligation on the cow-keeper to register, and on the local authority also to register him.

16. Has it been reported to your Board by any of the officers appointed with your sanction that breaches of this regulation have been persisted in and not corrected by Local Authorities?—I refer to the duties imposed under the regulations?—Of course, registration is a single act. It simply involves the furnishing of the trader's name and address, and a record of that in the Register of the Sanitary Authority. Some of the local bodies have been slow to insist on registration, but it really does not involve very much by itself.

17. That is exactly what I want to convey?—It is at most the preliminary step. It is the mere notification of the fact that a given individual carries on the trade of cow-keeper, but it is the foundation of administrative action and a very necessary foundation.

18. I am not speaking disparagingly of the powers conferred by registration, but what I wanted to know was whether you thought extended powers would enable you to make more effective inspection and give you more control?—The power of licence would undoubtedly give local authorities a very strong hold over cow-keepers who sell milk for public consumption, but not over the private individual who keeps a cow for his own domestic use.

19. Mr. DUNN O'BRIEN.—What is meant by the term "vendor of milk" under this Order which makes provision for the registration of "all persons carrying on the trade of cow-keepers, dairymen, or purveyors of milk"? What does that mean? Is anybody liable to be called a purveyor who sells milk, say, to his labourers or workmen?—If he carries on the trade. It must be done persistently, and more or less as a matter of business. It is persons carrying on the trade of purveyor of milk that are referred to.

20. What struck me in this Order was whether, for instance, farmers selling milk to the creameries are brought in?—They are brought in specially. The creamery supplies are expressly included.

21. Lady EVERARD.—Can I have it that a farmer selling to his labourer would not come under the Act?—I should not like to express any positive opinion on that point.

22. I think it is a very important question?—It depends altogether on the circumstances whether the farmer does it as a matter of trade, and whether he does it continually.

23. I say if they did it purely as a matter of convenience, and the labourer is not able to get milk elsewhere?—I think that point can only be raised on a prosecution. I would not like to give a decisive opinion that a farmer under these circumstances did not carry on the trade. I think the particular circumstances would have to be considered.

24. The CHAIRMAN.—What is your experience with regard to local governing bodies?—do they appreciate having the Order made imperative or left permissive?—I am disposed to think, on the whole, that the imperative Order assists them, because there is a certain amount of odium if they assume personal responsibility for imposing regulations under the Act in their own vicinity or neighbourhood. On the whole, I think that when the responsibility rests with the Local Government Board or a Central Authority, it is a matter of assistance to the Local Authority.

25. I can quite understand that because if the option is left with the Local Authorities, certain influences may operate on their minds which are purely local,

and if the question is "may" and not "must," in all probability your Order may contain a dead letter, whereas if it is imperative they can always shelter themselves behind the Local Government Board, and say, "this Sanitary Board insists on putting this into operation?"—I think that is so.

26. Under this Order, I am given is taken for regulating the lighting, ventilation, cleansing, drainage and water supply of dairies and cow-sheds in the occupation of persons following the trade of cow-keepers or dairymen. Do you know of your own knowledge whether this has been a really active Order, and whether it is carried out by local bodies in the spirit in which the Local Government Board drafted it?—In answer to that question, I should like to say that some of the local veterinary inspectors have come to me from time to time, and asked my advice as to the method in which they should carry out their duties, and I have always adopted the line that they should act, particularly at the beginning, tactfully and reasonably, and not create the impression that the administration of this Order was to lead immediately to any extensive or costly structural re-arrangements. The suggestion I made to them was that they should attack the worst unsanitary conditions first, and when those had been remedied they should gradually go on to deal with the other subjects that required attention. I know that the view of the Local Government Board is that the progress in regard to the cow-sheds must necessarily be gradual. We cannot hope to carry out a revolution in a hurry.

27. If I may say so, that seems to me to be quite a reasonable spirit in which to undertake the administration. The only other question I would like to put to you is whether or not your Board is satisfied that reasonable progress is being made in the improvement of the conditions under which milk is being produced?—I think, considering the conditions which existed before the Order was issued, that considerable progress has been made, and the Local Government Board is of opinion that that progress is reasonable, having regard to the conditions. I would not, however, like to suggest that the conditions of the cow-sheds are entirely satisfactory. There is much room for improvement, and we hope in the course of time to work up the conditions to a higher standard.

28. Prof. MERRIV.—Does that specially apply to the rural districts?—So far as cow-sheds are concerned.

29. Have you any information as to how the Order is working in the rural districts—is it adopted as a rule?

—Well, I should say that if you take as a basis the Councils that have not appointed officers, the majority of such Councils are in the rural districts. I think that there has been a better standard of the appointment of officers on the whole in the urban districts.

30. The CHAIRMAN.—Perhaps that is only natural. Perhaps the necessity for it in urban districts is more imperative than in rural districts?—It is largely a question of aspect of interests. The urban districts in the main are consumers, and the rural districts are producers.

31. In the districts in which creameries are established, and where large herds of cows are kept, have most of the Local Authorities in those districts put this Order into force?—Yes, by far the greater majority. I think the memorandum I handed on shows this. Out of the total of 309 sanitary districts, 250 have appointed officers. There is an outstanding balance of 59 districts, and many of these are districts on the West Coast, in regard to which there is a very great difficulty in dealing, because there is very little production of milk for sale, and it is a matter of some doubt to what extent really the trade of a cow-keeper is carried on at all. I mean districts like Clifton, Goughier, and Belmont. There is very little production of milk for sale in districts like these.

32. I quite understand that most of the occupants have got some means of being supplied with milk. Is not that so?—I think so.

33. And in districts where the land is more productive and more valuable, the scarcity of milk is more keenly felt. I suppose that does not come within your scope?—The Local Government Board have very little information at present as to the sufficiency or otherwise of the milk supply. I did make certain inquiries of the Board's Inspectors, and if the Committee would be interested, I could read the replies I have received.

34. There would be replies from Local Government Board Inspectors, whose duty it is to go through the

various districts looking into the administration of the Local Authorities under the Public Health Act?—Yes; there are five of these throughout Ireland.

45. And they are continually on the move throughout the country in pursuit of their other duties?—Yes.

46. And you have some of their opinions regarding this question as to the scarcity of milk?—The point I put to them was this,—whether, in their opinion, the enforcement and operation of the Dairies Order had any effect in driving people out of the dairy business, because I thought that was a point upon which the Commission might fairly expect information from the Local Government Board.

47. You approached the consideration of the question from the point of view as to whether or not the restrictions and limitations imposed by the Order had in any degree been responsible for the scarcity of the milk supply?—Yes, I thought that it would be impossible.

48. It would be very interesting if you gave us the opinions you collected from the officers of your Board?—The first letter is from Sir Ashton MacCullagh, who is in charge of the western district. He writes:—"There is not the slightest reason to think that the operation of the Dairies Order has had the effect of driving people out of the dairymaking trade. No such instance has occurred in my district. The curious thing is that where the Order is in force, the people are trying to improve the cow-sheds, and to comply as far as possible with the requirements of the Inspector. Of course, there are some exceptions, but there cannot be the slightest doubt that the Order has been beneficial, and is slowly effecting an improvement in the milk trade. The Order has in no way curtailed the milk supply to the public. The creameries are the cause of any shortage in the milk supply to the public, and this shortage is most marked in the creamery districts." I should like to say that, as regards creameries, that is only an expression of opinion from the Inspector. I would not like it to be taken as an official statement of opinion.

49. It is an item that has come to your knowledge, and we quite appreciate the spirit in which it was given?—Dr. Rowne, the Inspector for the Dublin district, sent me a telephone communication to this effect, that he heard in the South of cases where farmers gave up supplying milk to labourers, but could not give particulars, otherwise he knows of no restrictive effect of the Dairies Order on the milk industry. In the South, creameries caused a shortage of milk by drawing away supplies from farmers' houses. In Meath he heard complaints of shortage of milk owing to the use of the land for hay-making. That is my own summary of his telephone message. Dr. McCormack, who is in charge of the Cork district, states:—"I don't know of a single case in which the carrying out of the provisions of the Dairies Order has had the effect of driving people out of the dairymaking trade. Some of the cow-keepers, no doubt, threatened to give up the keeping of cows altogether when they found that everything tending to the production of a pure and healthy milk supply would be strictly carried out by the officers appointed under the Order, but they never did so. It is now generally admitted that the Dairies, Cow Sheds and Milk Shops Order, if properly and efficiently administered, is one

of the most useful and effective of all the many beneficent acts compared in the wide field of preventive medicine at the present time. That is the opinion expressed to me by the several officers of health, numbering about 60, with whom I discussed the question of the administration of the Order on the occasion of my inspection visits through the south-western districts since February last." This is from Dr. O'Brien, who is in charge of the Belfast district:—"I can give you very little information in support of the suggestion that the enforcement of the Dairies Order in my district has caused any shortage of the milk supply for domestic purposes. I have only heard this suggested as being so in one district, namely, the Newtownards Rural District. This difficulty of obtaining milk was, I understood, experienced by the labourers in certain parts of the Ards portion of the Union. I have also heard, and I believe it is a fact, that the enforcement of the Dairies Order has caused a diminution of the milk supply to one or two creameries in the Ballymacra Rural District, Alaghilly creamery and its depot, and the Rathbarney creamery. The price paid at the former creamery was low, and may account for the falling off of the supply. The milk supply to the towns and villages of my district is, I believe, sufficient, and the price moderate, ranging from 3d. in the summer time to 3½d. in the winter months."

50. The CHAIRMAN.—The statement made is an important one, and we would be glad if you could give us the district in which this gentleman is administering?—It is the north-east corner.

51. Antrim and Down?—Yes, and Armagh and Tyrone.

52. Miss McNEILL.—Does it come as far as Dundalk?—Yes, I will send in a list of his districts.

53. The CHAIRMAN.—I regard the statement as one of extreme importance?—Roughly speaking, his district is the north-east corner. It extends from Dundalk to Portrush.

54. And running on to Derry?—No, it does not go right into Derry. Dr. O'Brien continues:—"The usual price in Belfast is 3d. per quart in the summer, and 3½d. in the winter. It is unlikely that there should be any general shortage of the milk supply in my district, having in view the fact of the large number of small farmers, and the comparatively few number of creameries. From my observations of the condition of the cow-sheds I have inspected, I cannot consider that the purveyors of milk are required to do anything more than is absolutely necessary; in fact, more is required for the sake of public health. I may say that I have frequently made it my business to inquire into this question, and, with the exception of the Newtownards Rural District, I have heard of no complaints of the shortage of the milk supply for domestic purposes." In addition to that, he furnished me subsequently with reports from a number of medical officers of health. I don't know whether these would be useful.

55. They are probably very detailed?—I have summarised them here.

56. Then perhaps you would be so good as to read them for us?—This is the summary:—

District.	M. O. H.	
Newtownards Rural	Greshamby Donaghadee	Farmers would not sell to labouring class for fear of coming under the Act. Complaints for a considerable time.
Barrhead	Donaghadee	Never heard of any scarcity due to Dairies Order.
Dungannon	Donaghadee	Not inclined to believe that there is a scarcity due to Dairies Order.
Lurgan	Lurgan	Never any scarcity of milk.
Lisburn	Hillsborough	Dairies Order has not made any difference. In country there has been a scarcity—in town plenty for all who are able to buy.
Magherafelt	Maghera	Never heard of any scarcity arising from Dairies Order, and fully good supply for all classes.
Downpatrick	Killough	Labouring classes and poor often find difficulty in procuring milk, but neither greater nor less than for past 27 years.
Armagh	Keedy	Not heard that Dairies Order has made any difference—always a scarcity in winter.
Antrim	Conna	Never heard of such scarcity.
Ardfert	Clerk of County	Never heard of domestic scarcity; small farmers ceased to supply Rathfriland and Rathfriland Creameries.
Larne	Do.	Heard no complaints.
Newry I. and II.	Do.	Scarcity could not be attributed to Dairies Order.

47. The CHAIRMAN.—These seem to discount the statement made by the medical gentleman, because the Medical Officers would seem to have dealt with the question, not as to the general scarcity, but as to the operation of the Diseases Order in regard to the same?—Of course, that was particularly the point on which I was anxious to obtain information. From Dr. MacCarthy, Medical Inspector of the North Western District, I was unable to obtain a statement, as he was absent from duty on account of ill-health.

48. There seems to be a consensus of opinion that the Diseases Order has not in any way limited the supply?—That is so.

49. Mr. O'BRIEN.—The first place on your list (New-towards Rural District) states that the farmers would not sell to their labourers for fear of coming under the Act. That is not the point, but whether the farmer who sells milk to his labourers comes under the operation of the Act?—I would not like to express an opinion.

50. It has not been tried?—Not that I am aware of.

51. The CHAIRMAN.—No prosecution has taken place to decide this question?—None that came under my notice.

52. You refer to a difficulty which arose in regard to Kilmallock Rural District Council, in which your Board felt bound to obtain the opinion of the High Courts on the question of their right to compel the Council to appoint a Veterinary Inspector. That, I believe, is done under the Public Health Act?—Yes, because there were no clear words in the Contagious Diseases Act authorising the appointment of officers.

53. Will you be good enough to tell the Commission what happened in that particular case?—We had very prolonged communications with the Kilmallock Rural Council with a view to persuading them to appoint officers. It is a district where an immense dairy industry, mainly of the creamery character, is carried on, and the Board learned from their Inspector that the conditions obtaining in that district were very unfavourable. This is a summary of the Inspector's observations:—"The condition of the cow-sheds generally is unsatisfactory as regards construction, ventilation, lighting, drainage, cubic space, and cleanliness. The surroundings generally are of the most unsanitary description; the manure is stored in close proximity to the sheds, and the drainage is allowed to flow over the surface of the ground surrounding the sheds, where it frequently lodges and becomes stagnant. Many of the sheds have mud walls, which are never lime-washed, and are covered with filth; roofs of thatch, and floors cobble-paved, without matured tranches, or any means of drainage, and are dark and in a dirty condition, the only means of ventilation and lighting being the doors of the sheds and a few small openings in the walls." The results of the Inspector's Report were forwarded to the Rural District Council, and finally the Board was advised that the only way to bring matters to a head was to issue a Mandatory Order to compel the Council to appoint a Veterinary Surgeon for the purpose of the carrying out and enforcement of the provisions of the Order. That was done, and in due course the case went to the King's Bench, where the Court took the view that the Board's Order was ultra vires, but on an appeal to the Court of Appeal, the Order was sustained, and the Court issued a peremptory Writ of Mandamus against the Council. From the legal point of view the question was one of very great obscurity, and in the notes I have already furnished to the Commission that matter is dealt with. I do not know whether the Commission would wish to have it referred now.

54. Perhaps it would be advisable if you could summarise it in order that we may have it on the official notes?—I don't think I can make it shorter than it is in the Memorandum.

55. Then read the Memorandum for us?—It is as follows:—"A case of much importance was decided in the Court of Appeal in December last on proceedings instituted by us against the Kilmallock Rural District Council, with a view to securing compliance with an Order made by us in pursuance of Section 11 of the Public Health (Ireland) Act, 1878, requiring the Rural District Council to appoint as a Sanitary Officer a person with the qualifications of a registered Veterinary Surgeon for carrying out the inspection and supervision of the milk supply. The main issue turned upon the question whether the two remaining sections of the Contagious Diseases (Animals) Acts, 1878 and 1886, which constituted the statutory authority for regulations for

the control of the milk trade, could be read in conjunction with the Public Health Code, or whether they formed a separate and independent code. Originally the statutory provisions as to the control of the milk supply were included in an Act of 1875, relating to the diseases of animals under which, in Ireland, the Central Authority was the Privy Council, and the Local Authority was the Board of Guardians of each Union. In 1890, the functions of these authorities, so far as the regulation of the milk trade was concerned, were transferred respectively to the Local Government Board and the Urban and Rural Sanitary Authorities. By subsequent legislation, a consolidation of the Acts relating to diseases of animals was accomplished, under which the two sections affecting milk in the earlier Acts were overthrown from the general repeal, while still later the Boards of Guardians and the Privy Council were severally replaced by the Co. Councils and the Department of Agriculture and Technical Instruction for Ireland, in connection with the control of diseases of animals. It will thus be seen that the many administrative changes which had taken place since 1875 formed an element of uncertainty as to the true relation in which the provisions relating to milk stood, and rendered it open to argument whether there was any legal authority for the appointment of officers for the purposes of these provisions. The Court of Appeal, reversing a previous judgment of the Court of King's Bench, decided that we were legally justified in proceeding under the provisions of Section 11 of the Public Health (Ireland) Act, 1878, and granted a peremptory writ of mandamus against the Kilmallock Rural District Council. This justified proceeding, confirming as it did the line of policy which we had adopted in pressing for the enactment of the Diseases, Cattle and Milkshops (Ireland) Order of 1908, has been of assistance in removing the doubts which had deterred a certain number of Local Authorities from making arrangements for the administration of that Order." That is the summary of the point that was decided.

56. I would like to take you a little further in regard to the appointments of Veterinary Surgeons. Have the Local Government Board any authority to order, or have their officers any authority to order, the destruction of a beast that is certified to be suffering from tuberculosis if discovered in a dairy?—The only provision of this kind is contained in Section 18 of the Tuberculosis Prevention (Ireland) Act, 1908, under which the Sanitary Authority may order the destruction of a milch cow found to be affected by tuberculosis of the udder. It is limited to the udder.

57. Has that section ever been put into operation?—It has.

58. Has any provision been made for the payment of compensation to the owner of the cow destroyed?—Yes, up to a limit of £10, and in case of dispute the amount is to be decided by arbitration.

59. Has the result of that limit in any way prevented the general application of the Order?—has it been felt by the Local Authority that if animals were destroyed they would be inflicting a monetary loss upon the owner?—No such case has come under my notice.

60. The CHAIRMAN.—I was going to suggest, if it meets with the views of the Commissioners generally, that I should put a few general questions to the witnesses with regard to the notes they send in, and that I would then ask the members of the Commission to put whatever questions occurred to them, either with regard to the notes, or to the answers given, or in reference to points that have not been brought out. Will that meet with the general view?

Mr. O'BRIEN.—Certainly.

The CHAIRMAN.—If there is any question you wish to ask the witness you could put it now, Lady Everard.

Lady EVERARD.—The only question I wish to put was what I did ask before about the farmers supplying their labourers.

61. Mr. JAMES LEVINGSTONE.—I wish to ask, as there is some doubt on the point, what is the definition of a trader under the order? I presume that all persons who supply milk in bulk are included?—Yes.

62. Will those trading in goat's milk have to register? Will goatkeepers come under the same heading?—That point has not come up.

63. He is a purveyor of milk, is any role.

Mr. O'BRIEN.—Is it not a fact that tuberculosis at all events has not been detected among goats?

Prof. MERRIM.—Goats are susceptible to tuberculosis. There is no doubt about that.

The Witness.—The point has not occurred in practice, so far as I know, about the keeping of goats. I think they are kept merely for the private consumption of the owner.

84. Mr. WILSON.—There are one or two small points I would like to clear up. I want to understand why this enormous evaluation is made in the case of persons carrying on the trade of cow-keeper or dairymen for the purpose only of making or selling butter or cheese or both—Section 5, and also the interpretation, I don't understand what reason there is for permitting a small man to make butter at home under the conditions of dirt and filth that are indicated by these Regulations and forbidding him to send the same milk to a country?—Because experience has shown that creameries are capable of exerting a potent influence on the dissemination of infectious diseases, and that is a matter which has come under our notice constantly.

85. I don't see why both should not be forbidden?—It is very doubtful whether butter, and the conditions of butter manufacturers, come under the scope of this Act at all. If you take the terms of the section and read them as a whole, the fundamental idea is the protection of milk, and not the products of the milk; while, of course, in practice, one knows that milk is the ordinary or common source of infectious diseases, it is very doubtful—I would not like to deny the possibility whether infectious disease is communicated by butter.

86. With regard to Article 16, I gather that you have power under that bye Order of 30th July, 1909, Article 4, sub-section 5, to report to the Secretary of the Department of Agriculture any case of tuberculosis?—That clause was put in at the express desire of the Department of Agriculture, because they were promulgating an Order under the Diseases of Animals Act at the time, and we thought it well that a similar expressed duty should be placed on the Veterinary Inspectors of the Sanitary Authority as was placed on the ordinary Veterinary Surgeons.

87. Have you any evidence as to how many cases have been dealt with under that provision?—No, we should say nothing about the reports.

88. Can you suggest the reason why you allow a considerable number of the Inspecting Officers not to be Veterinary Surgeons? Is there any serious reason why they should not all be Veterinary Surgeons?—The main line of demarcation has been drawn according to the extent of the dairy industry. In the districts where Inspectors are appointed, there are comparatively few dairies and the extent of the trade would not justify the imposition of a Veterinary Surgeon.

89. The CHAIRMAN.—I rather gather that under the present conditions the Local Government Board is fairly well satisfied with the provision it has made for inspection?—The statutory provisions for inspection are no doubt sufficient, but, of course, there is a considerable divergence of practice between different districts in regard to the manner in which inspection is carried out.

90. You are satisfied with your powers?—I don't think the powers in the main need be extended.

91. Mr. CAMPBELL.—How many Sanitary Authorities did you have appointed Inspecting Officers?—250 have been appointed out of 300. There are about 50 outstanding.

92. My point is that there is a very large number unregistered?—I have no doubt that the number could be enormously increased.

93. For example, could you say from your own knowledge that nearly all the persons sending milk into Dublin are registered; milk comes a considerable distance?—Yes.

94. Is there any means of ascertaining that all the persons sending milk into Dublin are registered? Is it possible that milk comes from districts into Dublin where cow-keepers are not registered?—It is considerably possible. The standard is being improved from year to year. To meet your point I may say that on the 31st March, 1910, there were only 4,561 persons registered, and on the 31st March, 1911, there were 38,488, so that we made a great advance in that year, and I hope that when we get the reports in next March we will show an equivalent increase.

95. Of course there are half-a-million people keeping cattle—certainly 400,000?—Yes. But a lot of these are better systems.

96. But still, from that, there must be a very large number of persons who are not registered?—Yes; what

happens is that we get the returns once a year, and they are carefully scrutinized, and in any districts that seem to have a small number, we urge the Council to stimulate their Inspectors to greater activity, and to take proceedings, if necessary, against defaulting cow-keepers.

97. Do the Local Authorities in Dublin in charge of the Act take any steps to secure that the milk coming into Dublin, is all from registered dairies?—I think they do.

98. They have the power?—I think so. I think it is quite possible for them to ascertain that. I might refer to one of the Articles in the Order.

99. The only way that could be done is to go to a dairymen's premises and see the names of the persons supplying him with milk?—Yes. If you look at Article 31 you will see that "Every purveyor of milk shall keep a register showing the names and addresses of all persons from whom at any time he obtains any supply of milk, and shall permit the sanitary sub-officer or any other officer of the Local Authority thereto authorized by them to inspect such register at all reasonable times."

100. So that if a man in Dublin who is a milk distributor obtains his supply from the country, the sanitary authority have it in their power to go to that milk distributor and obtain a list of the sources of supply and deal with the matter?—Yes.

101. Prof. MERRILL.—And go down to the country?—They could not go outside their own district.

102. They could get information at any rate?—Yes.

103. And they could bring it under the notice of the particular Local Authority?—Yes.

104. Mr. CAMPBELL.—Who can give that information as to whether they can follow the matter up?—Sir Charles Cameron.

105. Lady EVERARD.—Do not the Local Government Board insist on the milk from the country being only from registered dairies?—That comes back to the question of licensing. We cannot interfere with a man's trade. There is a penalty upon a man for carrying on the trade of dairymen without being registered. He could be prosecuted and fined.

106. The CHAIRMAN.—Beyond that you could not go? You could not prevent him from supplying milk because he is not registered?

Lady EVERARD.—He must be registered to supply it. —No, that comes back to the question of licensing.

107. Supposing a man sends up milk to a Dublin dairy from the country, and he is not registered?—He is liable to a penalty.

108. And who enforces that penalty?—The Local Authority in the country.

109. Sir JOHN LANTIER.—Is it necessary that there should be such a round-about process?—The administration must be left in the hands of the local authority. I do not think the Local Government Board could undertake the details of local administration.

110. You would not leave it optional with the Local Government Board in the case of default or delay on the part of the local authority?—There might be some addition in the direction of compulsory powers. I don't know that I would advocate it very strongly. You see compulsory powers really are only useful up to a certain point. They may be a great help in getting rid of a specific obstacle or inducing a Council to do one specific act, but you cannot apply them to all the one hundred and one details of routine administration. There is a good deal of discretion which is absolutely necessary in regard to the administration of this Order.

111. Mr. O'BURKE.—I gather that at the present time the Local Government Board have no compulsory powers on the local districts to see that all the milk suppliers are registered?

Mr. CAMPBELL.—They have.

The CHAIRMAN.—I understand they have, but they are not usually pressing them, because they find that they are coming in gradually?—We can issue a Mandatory Order in respect of an appointment, and I don't know whether, supposing a Rural District Council obstinately refused to carry out the registration duties, we might not be in a position to take that Council into court. That case has not arisen, but it is possible that the Local Government Board under their general powers might be able to take that course.

112. Sir JOHN LANTIER.—In medical journals I have seen complaints that in London there is nothing to prevent the sending in of infected milk. I want to know if milk can come into Dublin from the country

without the Public Health Authorities being able to interfere?—In my experience cases do arise, where dairies are well looked after and inspected, and properly conducted, but at the same time by some mistake, some accident, the milk does get infected.

93. I meant the constant pouring in of infected milk to a city like Dublin from the outside.

Prof. MATTAM.—In some cities in Great Britain, in Manchester, for instance, the Public Health Authorities can go right into the country and can inspect the cows from which the milk supply for the city is secured. That is a private and local Act?—Under Section 19 of the Tuberculosis Act there is a power conferred on the Health Authorities of outside inspection.

94. Sir JOHN LAMMANCE.—Would there be any objection to such power as is exercised in Manchester being given to cities like Dublin and Belfast?—No. You will notice that in page 8 of my memorandum it is stated:—"The Councils of several Urban Districts have applied to us for authority to carry out the inspection of dairy premises situate in outside rural districts, from which the milk supply of the urban districts is derived. We have not hitherto thought it advisable to accede to such applications, as we perceived that the Rural District Councils concerned might be afforded an opportunity of arranging for the efficient discharge of their functions in relation to the milk supply, which in each case we have specially pointed out to them. Should it, however, be found that the rural authorities or their officers fail to make proper use of their powers, we shall be prepared to empower certain Urban District Councils to intervene for the due protection of consumers of milk in their respective districts. The power of doing so has been provided by Section 19 of the Tuberculosis Prevention (Ireland) Act, 1908."

95. Lady EVERARD.—I take it that Article 21 of the Dairies Order is a dead letter at present, because it cannot be followed up?—It can be followed up.

96. Prof. MATTAM.—Is it the business of the officer to communicate with the local authorities where the milk comes from that is brought into the city?—That is a matter of common sense. The local authorities have the power to enforce registration and it rests with them to exercise it.

97. In Dublin?—Yes; that applies to Dublin.

98. They can communicate with the local authorities from where the milk comes?—Yes.

99. Lady EVERARD.—It is only "may," not "must"?—It is obligatory on the purveyor to get a registration.

100. Is there any way by which the people of Dublin can know if the milk is from a registered dairy?—They can make inquiries.

101. The CHAIRMAN.—At the moment I take it the practice of the Local Government Board is not rigorous to enforce the Order at the very beginning. They are proceeding piecemeal and giving people an opportunity of coming in as far as they will voluntarily, although a provision is in the Order making that imperative if they so desire. Is not that so, Mr. Smith?—The policy of the Board undoubtedly has been not to precipitate matters.

102. Precisely. I was going to read from the draft of evidence you supplied as with an extract about this question on outside inspection power. It reads as follows:—"The Councils of several Urban Districts have applied to us for authority to carry out the inspection of dairy premises situate in outside rural districts, from which the milk supply of the urban districts is derived. We have not hitherto thought it advisable to accede to such applications, as we perceived that the Rural District Councils concerned might be afforded an opportunity of arranging for the efficient discharge of their functions in relation to the milk supply, which in each case we have specially pointed out to them. Should it, however, be found that the rural authorities or their officers fail to make proper use of their powers, we shall be prepared to empower certain Urban District Councils to intervene for the due protection of consumers of milk in their respective districts. The power of doing so has been provided by Section 19 of the Tuberculosis Prevention (Ireland) Act, 1908."

Mr. CAMPBELL.—Either for disease or want of cleanliness?—For anything. Heretofore the practice with regard to that has been to ask for specific instances of default, and that has generally brought about the cessation of the application. They do not like to go into details, and, of course, it is a strong measure to supersede one local authority and replace them by

another, but the attitude of the Board has been that before these powers are given a really strong case should be made out. In other words, at present the Board wishes to work through the local authorities.

103. Then Dublin must rely for the cleanliness of its milk supply on the local authorities?—From where the milk comes from in the main.

104. For example, you might have a strict authority in one place and a lax authority in another?—They can pull up the vendor.

105. But they have no authority to go down to the country?—Not unless they are given authority under that section.

106. Has there been anything done to co-ordinate the ideas of Inspectors under this Act? You have a large number of Inspectors under this Act—lay and veterinary?—Yes.

107. I suppose there are between four and five hundred. Has there been anything to co-ordinate their ideas of right or wrong?—No.

108. Every officer is left to set up his own standard?—He sets according to his own discretion.

109. Are Veterinary Surgeons better Inspectors than Lay Inspectors? Perhaps that has not come under your observation?—I know some individual Lay Inspectors who are excellent Inspectors, but on the whole the Veterinary Surgeon is the better man.

110. It is largely a question of common sense?—And diligence.

111. That may be possessed by others than Veterinary Surgeons?—Yes.

112. There is a very large district in the West of Ireland that is being broken up into new holdings. I observed in my journeys through the country they are putting up a cottage for the new holder. I also observe that they are putting up very inadequate out-offices. Now, I understand that this Dairies Order prescribes that no new building can be occupied by a milk seller?—By a person following the trade.

113. Until it has been passed by the Local Authority?—Yes.

114. Do you think that is being done?—Well, I have no reason to think that it is not.

115. You can see the importance of it. You are starting entirely new sets of buildings?—Certainly. I think that the time at which the Order came into operation coincided with a period of spasmodic regeneration. And in a sense this Order set up a new standard and new ideas for adopting where buildings and cow-sheds were being made.

116. Do you know whether the Estates Commissioners and the Congested Districts Board in laying down the foundations of these holdings are having regard to the fact that these people will by and-by be milk sellers?—I don't know.

117. Mr. O'HANRA.—Are these buildings being put up by the Estates Commissioners or Board of Works?

Mr. CAMPBELL.—So long as a man has not a milk shop he can put up any building he likes, and when the buildings are up he may decide to become a milk seller and it is found that the buildings are totally unsuitable for the purpose. Some of the buildings are so designed that they could never come within the regulations?—Certainly, and I am sure the Local Government Board would be very glad on getting any representation of a specific instance to follow it up.

118. You mention the case of Newswater, where some farmers had given up supplying milk to their laborers, or was there a suggestion of that kind?—Yes.

119. Some people consider that they are left out—that the farmer who supplies milk to his laborer is left out?—Yes.

120. Ought he to be left out?—Not if he does it continuously and systematically.

121. It is just as right that he ought to supply clean milk to the laborer as to the person in the town?—The suggestion that came into my mind as a remedy for that would be to have the supply of milk stipulated for in the conditions of hiring. In the South of Ireland there is a certain potato ground and right of grazing given as portion of the laborer's remuneration, and there can be no question that if it was done as part of the hiring agreement the farmer was not carrying on the trade of purveyor.

122. My point is that he is producing milk for human consumption?—But he would not be carrying on the trade—there would be no sale.

123. Would you allow him to supply tubercular milk?—I do not want him to do that, but if it is pointed out to me as a grievance that labourers of a particular farmer are not getting milk owing to the scrapie over the Dairies Order, I suggest that the difficulty could be got over by a re-arrangement of the hiring agreement between the farmer and his labourers.

124. That would not give the labourers pure milk?—No.

125. And that, after all, is the object of the whole thing?—That is the object.

126. And therefore don't you agree with me that everyone who is keeping cows, the milk of which is used for human consumption, ought to be registered and his premises inspected?—The answer is, that it would be very desirable, but I think both we and the Local Authorities have got quite enough on hands in looking after the people carrying on the trade of cow-keeper without extending our operations to every person who keeps a cow.

127. There is no logical reason why he should be left out?—No.

128. Lady Eversham.—Is Professor Campbell's contention that all cows should be registered?

Mr. CAMPBELL.—My contention is that so long as milk of a cow is used for human consumption it must be pure milk.

Lady Eversham.—Is it possible that milk coming up to Dublin might be tuberculous milk?—It is possible.

129. Mr. WINDGE.—It is undeniably true that there are several thousands of tuberculous cows scattered about Ireland?—A large number, probably.

130. What machinery can be devised by which these animals should be weeded out and killed? Is there any machinery under the Local Government Board?—No, and it could not be done without further legislation. I recall the existing powers would not do. Section 16 of the Tuberculosis Prevention Act might be made obligatory. Instead of saying the Sanitary Authority "may, introduce" shall, and exclude the words about the tuberculous of the order. In other words, render it compulsory on the Sanitary Authority to slaughter every cow suffering from tuberculosis.

131. Prof. MURRAY.—What are the qualifications of the Lay Inspectors?—Many of them are sub-sanitary officers.

132. They have no professional qualifications?—No. 133. Have they any practical knowledge of cattle?—Some of them have, others have no special knowledge.

134. There is no protection then for the consumers of milk?—There is a protection in this way—the unqualified inspectors have the right to call in the services of Veterinary Surgeons when they think it necessary.

135. Do they take advantage of that?—Undoubtedly they do.

136. Sir JOHN LESTER.—Is there any objection to this being made compulsory—so have qualified Veterinary Inspectors everywhere?—No, except as regards expense.

137. Mr. O'BRIEN.—There is a point I want to know: micrococci are bacteria, and come under the Factories Act?—I believe so.

138. If they take to selling fresh milk do they come in?—If they sell milk habitually and systematically they are liable to be registered as purveyors.

139. At present they are not?—No, they are treated as creameries pure and simple.

140. And they do not sell the skim milk?—No, I think not.

141. Returning the skim milk to the farmers who supply the whole milk is not looked upon as selling it?—No. That brings a suggestion to my mind that if there was an amendment of the law, it might be very desirable to frame a definition of milk so that it would include the selling of buttermilk, skim milk or separated milk, because at present the position is that only whey of whole milk have come under the operations of the Dairies Order.

142. I do not know whether it would not come more appropriately into Mr. Wadsworth's evidence or Dr. McWeeney's, but it is not an established fact that disease has resulted from the separated milk that is returned?—Yes.

143. The separated milk is taken in bulk, and it is impossible to know what supplier has sent in the milk?—It is very hard to know. The whole of the contributions goes into the one big mixing vat or something of that kind, and then the separated milk is distributed all over the district, and from the dissemination of that milk an outbreak of enteric fever has sometimes occurred.

144. It does not come in under your particular provision as to the pasteurisation of the milk?—It does to a certain extent.

145. As to whether it would be possible without putting too heavy a tax on creameries to pasteurise the separated milk; at present many of the creameries—I should say the majority of them—have pasteurising plant, but it is not for pasteurising cream?

Mr. CAMPBELL.—That is so.

Mr. O'BRIEN.—I don't think they pasteurise separated milk. A number of them pasteurise milk as it comes in. The cream is the only thing that is pasteurised where there is a pasteurising plant, but there is no creamery that has pasteurising plant for the separated milk, I think?—Here is a Report from Professor McWeeney to the Local Government Board in 1901. His suggestion in 1901 was that all new milk received should be pasteurised, and that is, I think, a recommendation we have been in the habit of acting on, though, of course, we have got no direct control over particular creameries.

146. Have you not new powers about buildings?—No, there is no direct control over creameries so far as the Local Government Board is concerned.

147. In Article 3 of the Dairies Order it is stated that "Every cow-keeper shall provide that every cowshed in his occupation shall be sufficiently lighted with windows or openings in the side or roof thereof of not less than one-fiftieth of the floor area of such cowshed," and then the Order goes on to give the amount of the cubic area and space and so on. Do these Articles 3, 4, 5, and 6, apply to town and country alike?—They do. The only difference is that there is a larger cubic space provided for the country boroughs, 700 cubic feet for the county boroughs and 500 for elsewhere.

148. And then there has been provision made here that existing cow-sheds all through the country practically shall be treated leniently?—Yes, so as not to compel every farmer to pull down his buildings.

149. Does it not seem a little hard on the farmer, supposing he does wish to rebuild his cow-byre, that he should have to provide an equal amount of space with the man living in the urban district, where in many parts of Ireland his cattle are put out, even in winter, the whole day. I do not know if you follow me?—I follow you.

150. The cows in the towns are practically left in the house day and night, but in the country these cows are turned out after they have been milked, and then stay out, and very likely are fed outside—they certainly are watered outside and get a large amount of air. They only come into their houses at night, and it appears to me that the requirements under this Order entail more expense on the farmer than is absolutely necessary. Of course, I am absolutely in favour of having the cow-sheds improved, but it appears to me that it may cost hardly on the farmers in the country districts?—These measurements are of a minimum character, and I don't think they would operate with any great hardship.

151. In the case of my own dairy byres, which were put up a good many years ago by my father when there was no Sanitary Authority inspection, these byres do not, I think, now comply with the stilet letter of the law, but they have been inspected, and the men of course state they were very good sheds from the point of view of air, but at the same time I don't think they are complying with the actual terms of the Order. I think also you will find it very difficult to allow all those openings above each cow?—That is one of the great difficulties, undoubtedly. They have a great objection to fresh air for their cows.

152. That is so, and I should have thought that the normals living in the open air for the greater part of the day, it would be less necessary for the good of the animals to have large byres than in the case of cow-owners who keep their cattle more confined. I am only looking at this from the possibility of farmers craving the regulations on account of the extra expense?—That would only apply to new buildings in practice.

152. Mr. CAMPBELL.—Not necessarily. There is an opinion that Local Authorities should not be irresponsible, but there is no reason why the Local Authority could not come down on the farmer. He has to escape.

Mr. WILSON.—If the local Veterinary Surgeon wanted to stamp on a man, he could?

The WILSON.—I don't think in practice you will find any hardship.

153. Mr. O'BRIEN.—The other point is more or less cleared up, that of the farmer supplying with milk his own labourers, or other labourers that he might employ, being liable to registration?—Yes, and to inspection.

154. But the Local Authority does not necessarily register him?—One must apply to be registered.

155. In the suggestion you have made, Mr. Smith, you suggest a way out—that the supplying of the milk by the farmers would become part of the labourers' hiring terms, but I thought that was an intervention of various Acts. There is the Truck Act, I think, which deals with it?—The idea only came to my mind, and I know that, so far as potato ground, grazing rights, and the like are concerned, it is a regular practice in the South.

157. I have found in my case that instead of giving potato ground, which was the custom, and very often giving milk, it was more satisfactory to give the labourers the money and let them buy the milk or potatoes from me or anyone else they liked than let them have this right to grow potatoes on my ground, which was neglected?—The suggestion I made was a personal one, and I don't lay stress on it.

158. The CHAIRMAN.—You suggested it as a means of dealing with the question of security?—In certain cases.

159. Mr. O'BRIEN.—The point arose from the Newtownards case, where people refused to sell milk because they feared they would be brought in under the Order?—Yes.

160. Dr. MACDONALD.—Do you regard the Order as a good one?—I regard the Order as an excellent one; if properly carried out it would be very beneficial.

161. Have you any direct inspection of the Inspectors' work?—We have not got any Veterinary Inspector on our staff. If arrangements could be made to have a Veterinary Inspector I am sure the Local Government Board would be glad. At present the inspection devolves on the Medical Inspectors.

162. Prof. METZGER.—Is the Medical Officer over the Veterinary Inspectors?—The province of the Veterinary Inspector is dealing with the diseases of animals, and I think that in anything where human health is directly concerned they must take their directions from the Medical Officer of Health. That is the view we have taken, but the Board have felt some delicacy about laying down very hard and fast lines as to the relations of the Inspectors and the Medical Officers. Look at Article 9 in the Sanitary (Veterinary Inspection) Order. That is about as far as we have gone in laying down their mutual relations.

"We shall report to the Sanitary Authority in writing, monthly or more frequently if necessary or so required by them, his proceedings and the measures which may be required to be adopted for securing the cleanliness or wholesomeness of the public milk supply; provided always that in the case of a county borough all reports of the veterinary inspector shall be forwarded to the Sanitary Authority through the medical superintendent officer of health."

163. When a Veterinary Surgeon is an Officer in a county borough, he recognizes that the Medical Officer of Health is head of the medical administration?—We had a great deal of anxiety on the question of the relations between the two, and the Board, I know, always felt a hesitation in laying down any hard and fast lines. In a small district where there is only one Veterinary Inspector it would be impossible for him to report to five or six Medical Officers of Health, and that is one reason why he should be given a direct line of communication with the Sanitary Authority.

164. The CHAIRMAN.—You think it would be well to have a Veterinary Inspector?—Yes. And I think the question is becoming an acute one.

165. Dr. MACDONALD.—Have you any information as to how these people who do not get milk from the farmers are supplied?—The Medical Officer of Donaghadee says, "they tell me they have to buy these liquid stuffs, put into jars."

166. The CHAIRMAN.—That is in consequence of the milk supply?—Yes. Dr. O'Brien sends me a letter from the Medical Officer of Grey Abbey stating that "I have heard of many cases where milk could not be obtained for money when sickness was present in houses of the labouring class. Milk was obtained as a charity in some cases, but for fear of costing under the Act farmers would not sell."

167. That particular difficulty seems to be limited to a small area?—Yes.

168. Miss McNEILL.—Would the Local Government Board sanction, say, for example, Dublin obtaining some powers to look out altogether the supply of milk from dairies which did not comply reasonably with the requirements of the Order. Professor METZGER has told us that Manchester has framed its own laws for that. Would the Local Government Board sanction that for Dublin?—What, I tell it, comes back to the original question of housing, but there is no power in the Local Government Board or the Sanitary Authority.

169. In England is there any such thing as licensing?—Not so far as my own knowledge goes.

170. Mr. O'BRIEN.—These large Corporations in England have outside inspecting powers. They can go down to the country and hunt up the dairies from which milk is supplied.

The CHAIRMAN.—Under what Act have they got that power?

Prof. METZGER.—Under a local Act promoted by the Corporation.

Miss McNEILL.—One knows that a quantity of milk vended in the city of Dublin comes in in a dirty condition. Is there any possibility of Dublin getting power to prevent this kind of milk being vended?—They can go against the vendor in the city.

171. Mr. WILSON.—Take a specific instance of what occurred in Belfast before this Order came out. There was a dairyman in the neighbourhood, and he got so unwell and dirty that he could not sell his milk locally and he transferred his business into Belfast, and Belfast had no power to exclude his milk?—They could not exclude his milk under existing powers. If there was a power of license they could. The licensing power is one that could be properly given.

172. Miss McNEILL.—Is there in this country any regulation as to obtain of the American States to destroy milk found by an Inspector to be in an unsaleable or dirty condition?—Yes; under Section 139 of the Public Health Act any milk which appears to be infected or unsaleable could be taken because a magistrate and condemned.

173. Can that be done at once?—The Inspector has to go before a magistrate and get an order.

174. Can the Inspector guarantee that another pint of that milk is not sold in the meantime?—The milk is seized.

175. Mr. O'BRIEN.—Have you power to inspect factories where the condensed milk is made?—No, not as such.

176. The CHAIRMAN.—Mr. Smith has, I think, expressed a desire if there should be any amendment of legislation that the products of milk and its constituents should be defined, and everything that is manufactured from it should be embraced?—Perhaps that is going further than was in my mind. What occurred to me was that the expression "milk" should be extended to embrace separated milk, skim milk, and buttermilk.

177. Why not all its products?—If you like.

178. Mr. Smith, as representing an administrative department, must be conscious of the limitations of the authority given to them, and I think it is of the utmost importance that we should try to effect how far these limitations have retarded the activity of the Local Government Board administration.

Mr. CAMPBELL.—I do not quite understand 'about the house. What is meant by a license in this sense. A permit to carry on the business of cow-keeper?—Yes. At present any individual who does, as a matter of fact, carry on the business has simply to intimate that fact to the local authorities. Supposing there were here-102 persons it would devolve on him to obtain a permit before he did sell.

179. That does not exist now?—No.

180. The CHAIRMAN.—That is the essential difference between registration and licensing?—The process could

be inspected beforehand by the Local Authorities, and the cow-keeper should satisfy the Authorities that he was in a position to carry on the business.

181. In the same way as applicants for spirit licences have their premises inspected by the police, in order that they may report to the magistrates whether the condition and construction of the premises are suitable for the business they are going to undertake?—Yes.

182. Mr. CAMERON.—Is it a possible alternative to the present system?—Yes.

183. The CHAIRMAN.—I think it is absolutely necessary if fresh legislation is undertaken that this power should be conferred.

Sir JOHN LESTER.—Would it be possible for us to have the particulars of the powers conferred in Manchester and other English cities?

Prof. MITCHELL.—It would be very valuable. Could we summon the Medical Officer of Manchester, Dr. Niven, to give evidence before us?

The CHAIRMAN.—I will ask our Secretary to ascertain for us if Dr. Niven would be willing to give us details of the system under which they have the power of going into the country and inspecting the cow-sheds and dairies, and determining whether the milk supply is such as should be sent to the city.

Mr. O'BRIEN.—Mr. Watson (Chief Veterinary Inspector, Dublin Corporation), seems to know a good deal about Manchester, and would it not be well to hear his evidence before we communicate with Dr. Niven?

Sir CHARLES CAMERON, G.B., M.D., F.R.C.S., continued.

184. The CHAIRMAN.—Sir Charles, you are Medical Officer of Health for the City of Dublin?—Yes; Medical Superintendent Officer of Health.

185. And I think you have occupied that position for a considerable time?—I have.

186. And naturally you have had a varied experience with regard to the infection conveyed by milk and other substances?—I have made a special study and examination of milk. I was for a great many years Lecturer on Agricultural Chemistry and Geology in the agricultural farm, now the Agricultural College, Glasnevin, for about 35 years, and I made experiments there on milk which have been published.

187. Coming to your more recent duties as the Medical Authority in Dublin, have you the power to ascertain whether or not the milk supply sent into the city has been produced under pure and hygienic conditions?—Not as regards the milk from the country.

188. A considerable portion of the milk supply now consumed in the city has, I take it, been sent in from the country?—Yes; it is coming from places that we have no knowledge of, nor of the hygienic conditions under which the milk was produced.

189. Do you think that is a very unsatisfactory state of things to prevail from the public health point of view?—I do; very unsatisfactory. I have had some experience myself of seeing in the country where the milk was produced that was subsequently sent to Dublin, and I must say that most of the places I have seen were in a very unhygienic condition.

190. In such a condition as you would think would constitute a danger to the public health of the community partaking of the milk produced there?—I am sure of it.

191. Has your attention ever been called to samples of unclean milk delivered to vendors in the city from the country?—Yes; I have very frequently noticed that the milk from the country was not, on the average, so clean as the milk from the city. I have seen some very dirty specimens of milk from the country.

192. The supervision, I take it, in the city is more strict than that which prevails in the country?—Yes. I am absolutely certain that the milk that comes into Dublin on the whole—I don't say that all the milk is dirty, but there are some cases in which you find that the milk from the country is less clean than the milk produced in the city dairies, which are under supervision.

193. Do you find any difficulty in enforcing the Orders which have been promulgated by the Local Government Board for the cooling and the vending of milk?—Well, no. Of course, that is with regard to the condition in which the cattle are kept in Dublin, and the condition of the people that are milking the cows

The CHAIRMAN.—It is arranged that Mr. Watson will be examined this afternoon, but I think it would be better if we had direct information from Manchester as to the circumstances under which these powers were conferred on the Local Authorities.

Prof. MITCHELL.—Mr. Watson's evidence would only be second-hand information. London has also got the power.

The CHAIRMAN.—Was that subsequent to Manchester?

Prof. MITCHELL.—I think it was, but I am not quite certain.

The CHAIRMAN.—Manchester was the pioneer, so to speak?

Prof. MITCHELL.—I think so.

Mr. CAMERON.—London is taking snuff from Tipperary.

The CHAIRMAN.—Does any member of the Commission wish to ask Mr. Smith any other question. You would have no objection, Mr. Smith, to come here at a later period if the members thought it desirable to examine you?—No. It is the wish of the Local Government Board that some further evidence should be tendered by them. The subject I was charged to deal with was the operation of the Dairies Order.

The CHAIRMAN.—The Committee will be delighted to hear any other evidence from the Local Government Board.

and distributing the milk. They might be in a better condition; I don't say that the dairy yards in Dublin are perfect dairy yards at all.

194. We are not idealists, and I hope we are only anxious to arrive at what one may reasonably expect should exist and prevail. What I want to know is, have you thought that the Orders governing the keeping of cattle and the sale of the milk are ample and sufficient to cover all the circumstances that come under your observation in order to ensure cleanliness and pure milk?—Yes, if rigidly carried out, and if all people engaged in the trade were zealous in endeavouring to keep their dairies in a proper condition, I think that the present Orders are quite sufficient. I must say that there is an enormous improvement in the condition of the dairy yards in Dublin. There is better ventilation. I remember twenty years ago, before any of these regulations came into force at all, there was a very bad condition of things in the dairy yards. I remember the cows being actually side by side. I remember one selling the owner of a dairy yard how could the cows lie down, and he said they took it turn about. That is all done away with now, and many of the dairy yards are kept in a very good condition, but I cannot say that they are all ideal, taking them as a whole.

195. Do you think any difficulty is created by the vendors of milk in Dublin selling milk produced in the country and relying on the warranty they get from the persons from whom they purchase?—I think that those warranties are very unsatisfactory. I think it is very difficult to deal with cases of that kind. Are you speaking now on the subject of the adulteration of milk?

196. The CHAIRMAN.—Yes.—Where adulterated milk is sold, and the person who sold the milk is summoned, because the milk is adulterated, and then shows a warranty—I say whoever sells the adulterated milk ought to be held primarily responsible. I remember a case where the person was fined £5 for selling as better an article which was not of the nature of butter, and recovering substantial damages from the person who sold it to him.

197. Your suggestion is that vendors can in the first instance be proceeded against, and be liable for any fault that has been committed, and if he has a bill of indemnity from another person that he can then sue that person to recompense him for any loss he may have sustained?—Yes, I don't think the loss and expense ought to be thrown on the sanitary authority.

198. Do you know, Sir Charles, does power exist to enable the Sanitary Authority to go into the country for the purpose of ascertaining under what conditions milk is raised which is supplied to the city?—Oh, yes. That can be done.

198. Can it be done in Dublin under the existing law?—Yes, but it would involve considerable expense.

199. It is only the question of expense that renders it difficult to carry out?—Yes; and the difficulty in ascertaining whether the milk came from the country. There would be great difficulty and considerable expense. I think this is the wrong way of approaching that question altogether. I think the authorities in each district in which milk is produced ought to be the authorities to be held liable for any bad state of things in the dairies in their district.

200. What I wanted to be clear about was this—suppose for the moment you had ascertained that milk was being sent into Dublin from a certain district in the country which was unclean, for example, apart altogether from the question of infection, have you authority as the Public Health Department of Dublin to go down to the country for the purpose of ascertaining the conditions under which that milk is produced?—Yes; I think under one of the regulations that is provided for, but before doing it we have to apply to the Local Government Board. To Mr. Watson (Chief Veterinary Inspector of the Dublin Corporation).—Have you ever gone down?

Mr. WATSON.—No. We made application to the Local Government Board to enable us to go down, but the Board replied that the district was already under supervision.

201. The CHAIRMAN.—The question was raised by the Local Government Board witness, and he seemed doubtful as to whether the power existed.

(Witness).—It existed with the consent of the Local Government Board; but I say that even if the Local Government Board's consent was not required, I think it would be a very great expense to be putting on the Local Authority to send down a skilled man to investigate a dairy in, say, the County Kerry or Tipperary.

202. I am dealing with the question of authority, apart altogether from the fact whether the scheme is practical or otherwise. Does the power exist?—Yes, with the consent of the Local Government Board.

203. Well, the Local Government Board witness seemed extremely chary about admitting that they had power to give such authority or whether it existed.

Mr. WATSON.—It exists under the sanction of the Local Government Board, and I can give you a case in which we applied.

204. The CHAIRMAN.—Did you get permission?

Mr. WATSON.—The reply we received from the Local Government Board was that the district which we mentioned had already enforced the Dairies and Cowsheds and Milk Shops Order.

205. The CHAIRMAN.—The Local Government Board witness conveyed rather a different impression to us here. We will not pursue it further.

Sir CHARLES CAMERON.—Is the Bill known as the Omnibus Bill, which the Corporation promoted, but which proved abortive and was superseded by a plenary of the omnibus, there was provision for inspection when sanctioned by the Local Government Board.

206. It is pretty obvious that the power does not exist and cannot be called into operation by the Local Authority unless with the sanction of the Local Government Board. Have you sought to have that amended?—We sought to have power to inspect milk wherever we knew it came from, but that Bill never became law.

207. That power exists in places in England?—It does.

208. And you sought to have the same power conferred on you by the Omnibus Bill which was rejected a year and a half ago?—We would like that power. I don't think it is a fair thing that the expense of going down to these places should be borne by the City of Dublin. I think that there should be adequate inspection in every district.

209. That is from the administrative point of view and from the point of view of economy?—Yes. There is no proper supervision of the places from which milk is conveyed into Dublin. There is no provision to see after the health of the cows and the sheds in the country, and it is for that reason that the milk coming in is not so clean as milk produced in the city. If I may venture to make a suggestion it is this—that I think the Veterinary Department of the Department of Agriculture and Technical Instruction should be entrusted with the supervision of all places in Ireland where live stock is kept, especially in regard to milk.

They have already jurisdiction in regard to diseases of animals. They have a staff of 54 Veterinary Surgeons, of whom 39 are in country districts. By increasing that staff somewhat the Department could have inspection made of all places from which milk is sent to Dublin and Belfast and other places. These Inspectors are all skilled veterinarians, and they have been taught in veterinary schools the importance of hygiene. I have been long of opinion that that should be done, and when I expressed that opinion before a Committee of another nature, there have since that been many appointments of veterinary surgeons by local councils. But then they are immediately under the supervision of the Councils, many of whose members are engaged in the production of milk, and naturally there is not the same independence in the case of a man employed by persons whom he might find fault with as there would be with a veterinary surgeon appointed by the Department of Agriculture or the Local Government Board, or by any body except the local body.

210. Your scheme would transfer the authority of dealing with this question from the Local Councils to a Government Department?—Yes, to the Department of Agriculture. I don't know whether they would like to have the business transferred to them or not. At the present time the Veterinary Surgeons in the country are mostly engaged in reference to swine fever, but there must be times when there is no swine fever in their particular districts, and when their attention was not taken up by these outbreaks of disease in animals they could devote that time to the examination of dairy yards and cowsheds.

211. You think it would lead to more effective administration to have this supervision by professional rather than by lay men?—I think it would. I have the greatest respect and the highest opinion of the benefits conferred on Ireland from the establishment of the Veterinary Department, first at the Castle, and then under the Department. I had great experience for many years, before I had Mr. Watson's co-operation, in examining and personally inspecting animals used for food and dairy cows, and found that there were hundreds of animals affected with pleuro-pneumonia in Dublin. That disease was completely wiped out in Dublin, after lasting for a period of half a century, during which time cattle were decimated. Owing to the exertions of the Veterinary Department in the Castle it was completely stamped out. Ever since that was done I have had a very high opinion of the utility of the Veterinary Staff in Ireland.

212. It is quite generally recognised, Sir Charles, that that disease was most effectively dealt with by the Veterinary Department of the time, and as you have said it is an enormous advantage to the country that the disease has critically disappeared. The powers already in existence enable you and your officers to inspect the cows from which milk is produced in the city of Dublin?—Yes.

213. Have you many reports from your Officers dealing with this branch of the question relating to suspected and infected animals?—Yes, there have been cases. Mr. Watson has been now for many years engaged in the inspection of animals in Dublin, and I think he could give you much more recent information than I could on the subject. Mr. Watson will give you ample evidence on that subject.

214. Do you suggest that the powers already in existence need to be extended or amplified in order to enable your Officers more efficiently to deal with cases of suspicion?—That would apply to the examination of animals in the public markets?

215. No, I am dealing with the cows that are kept for the production of milk in Dublin?—A great deal more might be done in this way, by more frequent inspections and a greater number of bacteriological examinations of the milk, and examinations of the udders of the cows, if one wanted to have an ideal state of things, which is very difficult to obtain without enormous expense for the application of tests to all the cows themselves.

216. Do you think that Local Authorities need an extension of their powers to deal with this question with a view to giving full compensation to the owners of animals that may be condemned?—I have always been in favour of giving full compensation to the owners of animals condemned in the interests of public health. For more than twenty years past I have been examined before Parliamentary and Departmental Commissions, and I have always said that in the case

of animals affected with tuberculosis, they should be put on the Schedule so that compensation should be given. Now compensation is given only in the case of milk cows, but it ought to be given in the case of cows of every kind affected with tuberculosis.

217. The compensation to be paid under the existing Order is, I understand, limited to £30?—It is.

218. Do you think that that limitation in any way hampers the administration of this Order, in view of the fact that your Officers are slow to condemn certain animals because they think that under the Order as it exists a monetary loss will be entailed on the owner of that animal?—I have every reason to believe that our own officers are not influenced by such a consideration as that. I don't think they go into that consideration at all, but only judge all the animals by the condition of the disease. I don't think that influences them in any degree.

219. I want to know whether or not it makes them if one might say so, extra careful in deciding whether or not animals should be sacrificed, simply because they fear that an injustice might be done to an individual owner?—It would not influence me in the slightest degree, and I am perfectly sure it would not influence Mr. Watson in the slightest degree, but he can speak for himself. I do not go as far as some Medical Officers of Health go. I have had experience of these animals for more than thirty years, and very often I have passed the greater part of a carcass affected with tuberculosis, considering that it would be fit for human food. I know that there are some Medical Officers who if they saw one tubercle in one gland would condemn the whole carcass.

220. The meat supply does not come within our terms of reference. You suggest in your memorandum that power should be conferred on local authorities to deal with milk coming in from a district suspected rather than declared to be infected with disease?—That was one of the clauses I suggested in that abortive Bill—that we should have power to prevent milk coming in from what we call an infected district.

221. Do you think that is essential for the safeguarding of the public health in cities and large communities?—It would be essential.

222. In a provision of that kind it is quite possible that a hardship might be inflicted on an individual owner?—Yes.

223. But your contention would be that for the safety of the greater number you would risk the infliction of a hardship on an individual?—I have always put health above all necessary considerations.

224. Do you think that it is possible that infection might be conveyed from the country in milk from a place which had not been declared infected by the public authorities?—Yes, of course, it often happens.

225. In what circumstances?—I do not know how you can deal with that.

226. I only wish to know exactly what circumstance you had in your mind when you said that?—I may say in a general way with regard to the importation of infection that Dr. Browne, a member of the medical staff of the Local Government Board, who had great experience in the South of Ireland, traced a great many terrible epidemics of enteric fever to milk sent into the metropolis. If that milk had been sent into Dublin instead of into the metropolis, no doubt there would have been outbreaks of enteric fever in Dublin. I have no doubt that mysterious cases of enteric fever in Dublin that we could not ascertain the cause of must be due to milk coming in from the country where there was some infection—either some member of the family or employee was infected with typhoid or was a typhoid carrier. I know of 125 cases of enteric fever and six deaths resulting from a typhoid carrier.

227. You had an outbreak of typhoid fever a year or two ago that was apparently traceable to that cause?—Yes, that could only be due to that cause. We had another outbreak a few months ago of 65 cases.

228. Attributable to the same cause?—Yes, undoubtedly—66 from the one dairy.

229. Can you suggest any method whereby that danger could be obviated?—It would be an extreme measure. I am sure my suggestion would not be adopted. Of course, there is a wonderful application of a test to human blood—the Widal Test. It produces reaction of the blood in most minute quantities, and if there are any micro-organisms of enteric fever in the blood they are disclosed. We have applied that test in several cases where we suspected that the milk was

infected by a carrier of enteric fever. If all who are engaged in milking cows and in the distribution of milk would only be so kind as to submit to the Widal test it would certainly inspire confidence. I do not suppose there could be legislation on the subject. You cannot take hold of a man and take a drop of his blood against his will.

230. The test does not involve much suffering on the individual?—No, even a child would not mind it. It is practically painless. It looks more formidable than it really is. It rather frightens people when we say we want a drop of blood from them. If milk vendors themselves would see that those they employ were subjected to the test and that the result was negative, I think it would be very useful to them from a business point of view. If I were a dairyman I would have my people subjected to that test and advertise it. It would inspire confidence in my customers and the public generally.

231. I suppose it would be quite impossible to determine what proportion of the ordinary members of the public would react under this test—no general experiment has so far been carried out?—No numerical results have been obtained. What we know is from researches in the Army Medical Department of male nurses. In some cases a man might be six or seven years absolutely free from any symptoms of fever, and yet his blood would be abounding with the typhoid bacilli.

232. He would be a source of danger to others?—I really think there is much danger.

233. That would be especially acute in the case of milk?—Yes. There is no evidence of it that I know, but I do think that a typhoid bacilli carrier is rather a dangerous man. I would not like to sleep with him.

234. The conditions under which milk is drawn from the cow have, I believe, been enormously improved from the point of view of cleanliness and hygiene?—It has greatly improved. Anyone who knew what the condition of the dairy yards was 20 or 30 years ago would be very much struck now on revisiting the places. Many of them are still but abominably squalid places. It is, however, an extremely difficult thing to keep dairy yards very clean.

235. I was alluding for the moment to the condition of individuals who draw the milk from the cows rather than to the conditions under which the cows are kept, because it was quite recognised in years gone by that those engaged in that particular occupation were not models of cleanliness?—No. I know of a small outbreak of disease not many years ago that I called dirt fever, which was due to the filth introduced into milk by milking the cows very early in the morning before daybreak with the aid of a small candle. I published an article in the *Dublin Journal of Medical Science* dealing with a disease that was due to that. We have in our Regulations a provision made with regard to milkers having clean hands, and there have been prosecutions of persons who were found milking with dirty hands. Mr. Watson discovered several cases. I noticed one myself where the hands were dirty at the act of milking.

236. And you have made it also imperative that the udders of the cows should be washed before the milk is drawn off if they should be soiled?—Yes, but I am not so sure it is always done.

237. At the same time, the very fact that such a provision is in existence and that a prosecution might arise must have a wholesome corrective effect?—Yes. Then there is a provision for a jar and a basin of water for washing their hands in. That is insisted on, and formerly these appliances were not present. I would be very glad if the dairy business were concentrated in a comparatively small number of persons. I find that those who have a large number of cows, say 40 or 60 cows, that their business is carried on in a better and more satisfactory way than by persons with three or four cows. The worst cases I ever saw were cases of owners of three or four cows. They were generally not kept in a proper state; but a great many of the dairy proprietors in Dublin carry on their business in a very satisfactory manner. I should like to see the business concentrated into as small a number of leaders as is possible.

238. Don't you think that would be bordering on the region of controversy if the legislation of a public authority were in any way to restrict the industry or the occupations in which people wish to engage?—I only express my own personal wish that all our cow

owners should have large numbers of cows, and that those owners were in a good social position and would like to have better ideas of cleanliness.

229. It is quite obvious that supervision can be better carried out under those conditions than where there is a multiplication of small cow-keepers?—Yes. In England, as a rule, dairy proprietors carry on a very extensive business.

230. With regard to the shops in which milk is vendcd, have there been improvements carried out?—Yes, great improvements. Many of the shops long ago vendcd not only milk, but turf and coal and other articles of that kind, and vegetables which might be polluted. There is none of that now. Nothing of an objectionable kind is to be found in shops where milk is vendcd. They can keep cake and bread and things of that sort, but nothing likely to contain infection.

231. Are the shops in which milk is vendcd inspected to see whether they contain sufficient air and ventilation?—Yes. I think the shops are in a fairly good condition. One condition is that there should be no bedrooms near a shop, or forming part of a dairy premises.

232. Do you think the powers conferred on you at the present time are sufficiently wide to enable you to safeguard public health? Do you suggest any amendment or alteration?—I think there is sufficient power given to the Sanitary Authority at present if we carried out the law.

233. Do you believe that the milk that is produced in the city of Dublin is superior in quality generally to that which is sent in?—I am absolutely certain of it, from an immense number of experiments that I made in former years. There is no doubt in the world about it. The average quality of milk contains 8½ per cent. of fatty matter and 9 per cent. of other materials, but I find Dublin milk is better than that. I should say that Dublin milk on an average, when pure, contains fully 15 per cent. of solid matter. I made hundreds of analyses of milk, not recently, but long ago, and I attribute the fact that the Dublin milk is superior to that supplied from the country is due to Dublin cows being better fed and getting warm food in the winter.

234. How far do you think the food supplied to the cow is responsible for the qualities contained in the milk?—I think it is more with regard to abundance than the nature of it. Innumerable attempts have been made to increase the percentage of any one constituent of milk by special foods being given, but on the whole they have been failures. I was thought you could increase the quantity of fat by giving certain kinds of food, but so far as I can see, I do not think it is possible by any mode of artificial feeding to vary the relative constituents; supposing you are giving as much food as the animal can possibly take, I do not think you can increase a particular constituent in relation to the other constituents. If you increase the fat you increase everything else.

235. You increase the bulk as well?—You increase everything. The Dublin cows are well fed, and get good wholesome feeding, and the yield of milk is certainly at least half per cent. total solids more than the milk of dairy cows in the country. I have that upon dozens of experiments.

236. A series of tests made by you at different times of the year?—Yes.

237. Were the experiments carried out at various seasons of the year with cows that were kept in different conditions?—Yes, in every condition; chiefly in the German Agricultural Station.

238. Are you speaking of experiments made in Ireland?—I am speaking of experiments in the German Agricultural Station.

239. What I want to know is whether you individually or any person under your control or guidance had carried out experiments on milk supplied from the Dublin dairies, and instituted a comparison between that milk and milk supplied by rail from the country?—I have carried out experiments on the milk from the Glasnevin Model Farm, which I look upon as being the same as a Dublin dairy. I got specimens that I saw milked from the cows, and the strippings and all added. Of course, you can get milk of any quality from the cow. If you take two-thirds of the milk away you will get milk rich in albumen but deficient in fat. But I have got cows milked, and compared their milk with milk from the country places, and I always found that the Dublin milk was superior.

240. Lady EVERARD.—I should like to ask Sir Charles a question I put to Mr. Smith as regard to Article 21 of the Dairies Order, which says: "Every purveyor of milk shall keep a register showing the names and addresses of all persons from whom at any time he obtains any supply of milk, and shall permit the sanitary sub-officer or any other officer of the Local Authority thereto authorised by them to inspect such register at all reasonable times." We asked Mr. Smith, of the Local Government Board, whether, in the case of milk going to be consumed in Dublin, what guarantee there is that it came from a healthy dairy or from a registered dairy?—In respect of the milk that is sold in shops?

241. Yes?—There is no guarantee that I know of.
242. Supposing you take a sample, and that it is not up to the standard, what action is taken?—There is a legal standard fixed for milk, which is based on the assumption that milk may be below the average quality and yet be pure. Of course, the average quality of milk means milk very rich and very poor, but the legal standard is poorest pure milk that may be.

243. Supposing it is not pure milk?—It is very rarely the case that milk is below the legal standard.

244. Supposing milk came in infected with tuberculosis, what remedy is there in Dublin?—If the milk is below the legal standard the vendor is proceeded against. There are hundreds of these convictions.

245. What about the person who sends it up from the country?—I have already referred to that subject, and have said I would hold the vendor responsible.

246. How can the vendor be sure at?—He may be protected by a warranty, a breach of which may be serious.

247. The CHAIRMAN.—I rather think the question Lady Everard is interested in is this—supposing it had been discovered that tuberculous milk was being sold in Dublin, how would the Dublin Health Department deal with that milk in order to secure that a further supply from the same source should not be sent in?—I have had cases in which the milk was infected. We have destroyed it, and given compensation to the vendor.

248. And have you the power to prohibit the sale of the milk?—Yes.

249. Has that power ever been exercised?—Yes, often, certainly.

250. And there is no doubt as to the authority to stop the sale?—Not the slightest doubt.

251. And is there any means whereby that authority can be circumvented, and the milk be sent in in some other person's name?—No, because it is kept under supervision. We had a recent case where the milk was suspected of having tubercle bacilli, and we prevented the milk from being sold. We destroyed it, and had a bacteriological examination of the biological nature—that is experiments upon an animal, a guinea pig or a rabbit.

252. Did you often find it necessary in cases such as you refer to, to invoke the aid of the local authority in the country to ensure that unclean milk would not be sent to Dublin for sale?—No.

253. Have you any further power to ensure that milk from sources of infection does not come into your area?—No. We would have to prove that it was infected.

254. What I want to be quite certain about is this—whether the Public Health Authority in Dublin have actually the power to secure that no milk from a suspected area is allowed in?—No. As I have already mentioned, in one of the clauses that I suggested in the Bill that was rejected power was given to inspect, and to have authority to go into those places. I may say that the milk we found infected and adulterated in Dublin is milk that comes in mostly from the country. May I say that I can pay a compliment to the members of the Dairy Association in Dublin. The members of that Association are not the only persons who vend milk. It is very rarely indeed that we have any cases of complaint against that Association. It is the small vendor of milk who bring in their milk from the country that we have mostly to deal with.

255. It is your matured opinion that it would be desirable that local authorities, such as the Public Health Authority in Dublin, should have the power

conferred on them of taking steps to prevent milk from infected sources being sent into any other area?—Yes.

252. And such powers do not exist at the present moment?—No. I am altogether in favour of having a thorough inspection of the places from where the milk is sent into Dublin, and that can only be done by increasing the number of veterinary surgeons in connection with the Department of Agriculture. Then they would be independent of any local influence whatever. I knew something has been done by the recent appointments of the Local Councils, but then the Inspectors are under the direction of the men that they would mostly have to find fault with.

257. You have already made it quite clear that it should be under the control of a Government Department?—Yes. I would have them to deal exclusively with the animals used as food or supplying milk. I have given that question many times before.

258. Sir JOHN LESTRAICHE.—I was about to ask that question that you have brought out, Mr. Chairman. Sir Charles does think that it would be in every way desirable that there should be powers conferred on the Local Authority to hunt up the suppliers of poisonous milk, and supposing a can came up by railway, and it was infected, that there should be a means of going down to the country, and finding where it came from, and stopping the supply to the city. I want to ask Sir Charles also if he could tell us, or obtain particulars as to those experiments in reference to the feeding of cattle and the relative quality of milk. I ask it, because I happened to be reading a few days ago a book by a medical man of eminence in Switzerland, and he lays stress on the fact that his patients must drink milk from cattle fed on dry fodder, and not on grubs or roots, and I would be glad to know if there had been recent investigations on this subject?—No. I do not know of any, and I totally disagree with his opinion.

259. If there is such information I would like to have it?—I think the milk of dairy cows in Dublin are fed produce very rich milk of an excellent quality and good flavour. They are fed on roots, too, and sometimes they get oats and grain.

270. Mr. CARRISON.—Is there a sufficient supply of milk for Dublin, Sir Charles?—I don't find any difficulty in getting milk myself. I cannot speak for others.

271. But you have got to pay 4d. per quart?—Only in the winter, and 3d. in the summer. These are the usual prices in Dublin.

272. I thought it was 3½d. in the summer.

Prof. MERRIAM.—3d.

Mr. CARRISON.—There is no reason why milk at 4d. per quart should not come from a considerable distance?—Well, no.

273. Or even at 3d. per quart you would think that there would be a much better supply than there is at present?—It would depend upon what it was bought for in the country.

274. Do you know why it is that farmers are so slow to send milk to the city if you have to pay 4d. a quart?—They don't get that.

275. But what they get ought to leave a good margin of profit?—Yes.

276. Do you think that dairy farmers are deterred by the danger of prosecution for their milk being defective?—I really cannot say. I do not think so.

277. Do you think farmers are sometimes prosecuted whose milk is not up to the standard and is at the same time genuine milk?—You cannot get me to admit that. When the fat is less than 3 per cent., or the non-fat matter is less than 8.5 per cent., then it is for the defendant to prove that the milk was produced under abnormal circumstances.

278. It is very hard to prove that?—I have known it to satisfy magistrates very often when there was very dry weather and poor pasturage. I think magistrates will accept any reasonable excuse.

279. If milk is below 3 per cent. of fat and 8.5 non-solids, it is usual to give a certificate to say that it contains some added water?—Yes.

280. Could it happen that the milk did not contain 8.5 per cent. of non-solids and yet at the same time be perfectly pure milk?—Yes.

281. Even then your certificate would be that it contains a certain amount of added water?—Yes, but I would never in the case of milk that was deficient in non-solids and rich in fat, give a certificate of adulteration.

282. Take, for example, the morning milk in Dublin. I am surprised to find that many people buy their milk in the morning instead of in the evening, because some milks are richer in the afternoon?—Yes. The afternoon milk is better; that is one of the experiments I made in the Model Farm milk. I found two curious things—that the oldest cows gave the smallest quantity of milk, but the best, and that there was a great difference between the morning and the evening milk.

283. It is so great that you would almost imagine that the milk was watered?—Yes.

284. Would you be surprised to find milk sold in Dublin under 3 per cent.?—Yes.

285. That would raise the presumption that it had been watered?—Yes.

286. I think many cows give as low as 2.6 per cent. in the morning?—Yes, but they would not all give that.

287. In the evening perhaps they would give 4 per cent.?—Yes. There would be a great difference between the two.

288. You don't think, then, that there is anything in these Orders that frightens farmers from producing milk to send to the city?—I have never heard any farmer saying that he was afraid. You would be more likely to hear that than I would. I do hear sometimes that they have a certain dread of being prosecuted in cases where the milk was perfectly genuine but would not pass the test. I have known cases where Jersey or Alderney cows were got to try and bring the general quality of the milk up to the proper standard.

289. With regard to the milk coming in from the country, it is mainly with regard to dirt that you find fault?—Yes, and it is not as good as the Dublin milk.

290. But it does not necessarily mean that it is diseased?—No, not at all.

291. You are aware of the regulations that are in force with regard to dairies and cow-sheds?—Yes.

292. Do you think that it would be very important that these Inspectors should pay more attention to the question of the cleanliness of the cows and of the milkers rather than to regulations as to distances and areas?—Well, I should like attention to both.

293. At the same time, the danger of the manure is that it may get into the milk?—Yes, I have often found it, and harm.

294. There is not much fear of bacteria getting into the milk from wet manure?—No, it must come from diseased persons.

295. Or the hands or clothes of the milkers?—Yes, or from the dust raised in sweeping the yard.

296. Do those smells from manure do any harm to the milk?—I do not know. I do not like bad smells in any circumstances. Nature has given bad things bad smells to make us avoid them. I would rather not smell air if I could help it.

297. But at the same time it has the bacteria that get into the milk that you are most afraid of?—Yes.

298. And it is not sufficient for an Inspector to go by the smell or the odour of the byre?—No.

299. You would lay more stress upon seeing that the hands of the milkers, and the cows and the vessels, were clean?—Yes. I have heard of children with the whooping cough being sent into dairy yards to get rid of it.

300. Sir JOHN LESTRAICHE.—Are not those smells which indicate that there is decomposition of a very foul character?—Yes.

301. And, on the other hand, there are smells which are innocuous?—There are.

302. Prof. MERRIAM.—Can you give us any idea of the amount of milk that comes into Dublin every year from the outside?—Well, Mr. Watson has been collecting statistics. I think that about half of the total consumption comes in. I see from the statistics of 1905 that something like 12,000 gallons come in daily.

303. What kind of inspection goes on when milk comes in by train?—The Sanitary Officers stand at the railway stations and take samples for examination.

304. Is it a chemical or bacteriological examination?—Both, but generally chemical.

305. Supposing any sample of milk was found to have tubercle bacilli, what would you do?—Before we discovered that, the milk might have been all drunk. If we found that the milk was bad, we would warn the person not to get milk from that source again, and we take a note of where it came from.

306. You have coming into the city a certain quantity of milk which contains infection. Are you to kill

down and allow it to come in?—I think that all the milk coming in should be subjected to a microscopic examination, and if there were tubercle bacilli found that there should be a further examination before it was allowed to be sold. Any suspicious milk ought not to be allowed to be consumed, but that would be very expensive; but it is done in other cities—in Paris, for instance.

307. And in Manchester. Supposing you find milk with the tubercle bacilli, would it not be desirable you should go down to the country to get at the cow that produces it and have it destroyed?—Yes.

308. The Widal test would be a big order?—Yes, so I said. I only said it would be a nice thing to do.

309. Is it the case that a person might be a typhoid carrier for thirty years or more?—Yes.

310. Though apparently in perfect health?—Yes.

311. Mr. O'Hara.—You have inspected a number of the dairies here and seen how the milk was obtained in the city?—Yes.

312. What time do you think the cows are milked in the morning?—About five or six o'clock in the morning, sometimes at four.

313. In the Winter time?—I think about six o'clock—very early in the morning.

314. How are the byres lighted?—By candles or lamps.

315. Stable lanterns?—Yes.

316. Do you think it is possible to get clean milk if you have so little light as that?—Well, I do not. If there was great care taken there might be—throwing the light on the actual spot where the milking was taking place. There is no other way of doing it, except by artificial light. It is not daylight until seven o'clock.

317. Is it possible in the Winter under existing circumstances, unless you have cattle in such numbers that you could afford to turn on electric light, to ensure clean milk; to ensure not merely that the milkers' hands are clean but that the cows' udders are properly washed, and that the cows generally are clean before milking?—I do not say it could not be done. It would be very difficult, but I would not say impossible.

318. You recommended partly for that reason that, if possible, it would be better to have a number of cows under one control as much as possible?—Yes. Get a man with capital who would have the money to adopt all the more recent improvements in every way.

319. You do not find that where an individual has half a dozen cows and looks after them himself or herself, these cows get far more careful attention than does the herd of a man who has 60 or 70 cows and a number of hired milkers?—My experience is that the worst dairies were where there were only a few cows—the place is badly drained and the cow is dirty. All the great dairy farms in England are wonderfully clean—where hundreds of cows are kept. Look at the Aylesbury Dairy Farming Company. These places are models of cleanliness.

Prof. MERRILL.—Some of them.

320. Dr. MOOREHEAD.—Do you hold a very high opinion of the dietetic value of milk?—Yes.

321. The youngest and the oldest take it?—Yes.

322. It is universally taken by every member of the community?—Yes.

323. Is there any substitute for cow's milk?—I don't know any proper substitute for it.

324. Of the same dietetic value?—No. The dietetic value of milk is very high. I look upon the fat as constituting very nearly half the value of the milk, though it is not quite a third of the total solids. I think separated milk is not half the value of whole milk.

325. Separated milk is of certain dietetic value?—I am sorry to say too much of it is used.

326. Is not condensed milk used largely as a substitute?—It is greatly used in Dublin. It is not equal to the ordinary milk, because there is an excessive amount of sugar in it. I find it is very largely used in Dublin.

327. You don't accuse it of being a carrier of tuberculous?—I don't think any preserved food is equal to the fresh food.

328. You don't consider it a carrier of tuberculous or typhoid?—It is just as possible to occur in condensed milk as in any other.

329. And there is no protection to guard against that?—It is very difficult to examine all the time.

330. There might be a label guaranteeing quality?—I don't see how they could do that. Where there is a large number of them turned out annually a few might be affected.

331. Does the process through which it goes tend to destroy any germ?—It has that tendency.

332. Miss McNamee.—In the case of milk sold in small shops in poor districts, is there any regulation as to how the milk is to be stored, or may it be stored in an open vessel?—The milk regulations require the milk to be carefully covered.

333. Do you know it that being done?—I think there are very few places where the milk is not covered. There have been convictions lately on that point. I think we may claim for our Corporation By-Laws that they are the only By-Laws that contain a provision with regard to the covering of milk vessels. I know no other place where there is a penalty for having the milk vessels uncovered. I have seen flies myself in milk not very long ago, and we know how dangerous they are. I believe a great deal of the diarrhoea that prevailed lately in Dublin was due to flies infecting the food.

334. You say there have been recent prosecutions for selling milk from uncovered vessels?—Yes.

335. Were fines imposed?—There were some penalties. It would be more for the purpose of making it known that the penalties were imposed.

336. Do you think that will have an effect?—Yes, it has had an effect.

337. The CHAIRMAN.—You have already expressed the opinion that no form of preserved food is equal to the fresh food. Have you any experience of the new method of preserving milk in a solidified form?—Dried milk; I have seen specimens of it. I have heard of persons going to the South Pole and places of that kind saying it would be very nice.

338. We see not very much accounted with them, Sir Charles. Our concern is with the people of this country. Is it used in Dublin in lieu of milk?—I have heard of no one using it in lieu of milk, the only thing in the condensed milk.

339. Have you any experience of goat's milk?—My own experience is not favourable. I don't like goat's milk. It always appears to me to have the odour of the animal itself. I believe I am the only analyst who succeeded in analysing the milk of a pig, which is an extremely rich food. It was with an American milking machine we managed to get the milk.

340. Have you ever instituted any comparison between the milk of cows and goats?—It compares very favourably; it is sweeter; it has more sugar.

341. From a dietetic point of view, what is its relative merit?—Not quite equal to cow's milk, but it is better than sheep's milk, which is still sweeter.

342. From the health point of view, you say you have no objection whatever to the substitution of goat's milk for cow's milk, where the latter is not procurable?—Not the slightest. It is largely used, and is an excellent article of food.

343. Mr. CAMERON.—For children?—Yes. I don't like the flavour myself.

344. In regard to the condensed milk of which Dr. Moorehead spoke, that is allowed to come in without any regulations whatever?—Yes.

345. So that if any persons sending milk to the condensed milk factory chose to be careless, there is no means of preventing that?—There is no legal standard.

346. There are no conditions prescribed so that milk would be clean?—No.

347. Don't you think that is wrong?—It is.

348. You think that these persons should be under the same regulations as persons sending the whole milk to Dublin?—Yes, and I think it should be standardised, and I think the Department of Agriculture ought to fix a standard for buttermilk, which is extensively used. A great many poor people use buttermilk, and there ought to be a standard. I think I was the first to put a standard on it, allowing 25 per cent. of water to be added.

349. The CHAIRMAN.—Mr. Smith suggested that all the regulations covering milk should also include its by-products, buttermilk, separated milk, butter and cheese—would you agree with that?—Yes. In the North of Ireland buttermilk is sold very extensively, and it is largely bought by confectioners, and there surely ought to be some standard. The standard I would fix would be 25 per cent. of water—25 gallons

of water to 100 gallons of milk. If people are going to vend it there ought to be some limit to the quantity of water. From some experience I had myself, 25 gallons of water to 100 gallons of milk would be sufficient in making the buttermilk.

350. Mr. CAMERON.—Buttermilk is extremely difficult to procure since the creameries came in?—Yes.

351. Because there is no churning at home?—Yes.

352. Except in the North of Ireland, so you say?—Yes.

353. The CHAIRMAN.—It is used for baking purposes?—Yes; and confectioners use it largely.

354. And in the production of home-made bread?—Yes. It is a very good article of food, and as long as it is an article of commerce there ought to be a standard to it as well as to separated milk. May I say something now on my own behalf?

355. Certainly.—It is in the midst of my evidence. It is on the subject of the action to be taken where you have every reason to believe that milk is infectious. There was a district containing 12 or 13 thousand inhabitants who received their milk from 30 dairy proprietors, and in this district there were at one time 120 cases of enteric fever. Of these, 123 cases all took the milk from one only of the 30 dairies. In a case of that kind it was absolutely certain that the milk was infected, and yet we found we could take no action to prevent the milk being sold. The matter was referred to Mr. (now Sergeant) O'Brien for his advice. The Law Agent of the Corporation, Mr. Rice, and the Assistant Agent, were of opinion that we could not take action, as the medical man who attended the family of the vendor and his servants certified that there had been no recent disease in that family or among the employees. The opinion was given that we could not interfere with the sale of the milk when we had no proof of there being micro-organisms in the milk, because the milk was excellent, and there was the evidence of the doctor that there had been no case of illness in the dairy, yet we could not doubt that the milk was infected, and we could not take action in the matter. I have here in my annual report the opinion of Sergeant O'Brien that we could not, under the existing regulations, take action in the matter, and prevent the sale of the milk. I think where there was a reasonable presumption that the milk from the dairy was infected, and though there was no evidence of micro-organisms in the samples of the milk and there was a certificate from the medical man that there was no illness in the dairy, yet it was certain the milk was

infected from the action of a typhoid carrier or some other source, surely some action should be taken. So I think a new regulation is required to meet a case of that kind. I communicated with Mr. Birrell on the subject when the Milk Bill was before Parliament, and he said that the matter would be looked into; but the Bill fell through. I found in another case where 27 people had enteric fever out of a small dairy, yet we could not prove that persons in the family had typhoid fever.

356. Was not that case proved to be a carrier?—We could not find out. We made examination, and got the Widal test applied, but I say that the mere fact that a large number of persons concerning the milk from one dairy, and contracting typhoid fever, is proof enough that the dairy is infected, and I hope the Commission will consider that particular point.

357. It is really one of the things that we want our attention directed to—what fresh regulations are necessary to safeguard the public health with regard to the conditions under which milk is produced and vendible, and you have given a suggestion which you think is essential?—I think it is the most important point I have brought before you. I would like to say that I have always found that the dairy proprietors in Dublin were willing to adopt any recommendations made to them. I refer to the people who are connected with the Association. We find they are always inclined to adopt any suggestion we make to them.

358. The CHAIRMAN.—Thank you, Sir Charles, we are much indebted to you.

To Mr. Watson (Chief Veterinary Superintendent, Dublin Corporation).—I think it would be impossible for the Commission to deal with your important evidence to-day, and I believe to-morrow will be a busy day. We have arranged to have Professor Mason in the forenoon of Friday—he has got an engagement for the afternoon of the same day—and we cannot conclude his evidence before the luncheon hour.

Mr. WATSON.—Any hour on Friday would suit me.

The CHAIRMAN.—To-morrow we may be able to give you some definite information as to when we can take your evidence.

Mr. O'BRIEN.—Can we take any of his evidence this afternoon?

The CHAIRMAN.—I am afraid it is too late now. Would it do, Mr. Watson, if we postponed hearing your evidence until next week?

Mr. WATSON.—Yes, that would suit me.

The Commission then adjourned until the following morning.

THIRD DAY.—THURSDAY, 30TH NOVEMBER, 1911.

The Commissioners met at No. 5, Upper Castle Yard, Dublin.

Present:—P. J. O'NEIL, Esq. (Chairman); LADY EVERARD; SIR JOHN LENTAGNE, F.R.C.S.; ALEX. WILSON, Esq.; J. R. CAMPBELL, Esq.; PROFESSOR A. E. METTAM, B.Sc., M.R.C.V.S.; DERMOT O'BRIEN, Esq.; GEORGE A. MOORHEAD, Esq., F.R.C.S.; MISS MARGARET McNEILL.

S. W. STRANGE, Esq., Secretary.

Professor H. J. McWHERRY, M.A., M.D., D.Sc., F.R.C.S.L., examined.

359. The CHAIRMAN.—You are Professor of Pathology in the National University?—Yes, in the University College, Dublin.

360. And you have made a special study of Bacteriology?—Yes.

361. Recognising the importance of milk as a food for human beings, I take it you have strong views as to the necessity of its being produced under clean and hygienic conditions?—Yes.

362. Are you at all conversant with the powers conferred on the Local Authorities to secure this end?—Yes; but being exactly a legal expert, I have a general idea of what they can do in the matter.

363. Of course, in the pursuit of the study of the various branches of Bacteriology and research connected therewith, you have from time to time come

in contact with the administration of Local Authorities?—Yes, I have.

364. And you recognise the importance of having these Authorities endowed with power to ensure that the milk supply for the communities over which they preside is produced in a healthy condition?—Yes, I think it is their duty as guardians of the public health to see that milk, which is one of the most important articles of human food, is produced under suitable conditions as to cleanliness.

365. Speaking of milk as a food, is it your opinion that milk is used by the general public to the extent that its utility would warrant?—That is rather a difficult question to answer. It is very extensively used by the general public.

366. But do you think that the juvenile portion of

the population is using milk to the extent that would be necessary to their physical development?—I am under the general impression that juveniles in Ireland—that is children—do not get as much milk as they ought to, but I am sure you will be able to get much more definite information on that point from persons occupying the position of Lady Visitors, nurses and others who are more directly brought into contact with the poor.

355. I was anxious to have a professional view on the question which the Commission would regard as of very serious importance?—You see an opinion can be only of value when it is grounded on actual observation, and although I have the general impression that what you suggest is quite true, I am not able of my own personal knowledge to give you any evidence on the point.

356. At all events you believe and subscribe to the principle that milk as a food for the juvenile population is one of the best on which they could be nourished?—Yes. I have heard they get too much tea in Ireland and not enough milk.

357. Are you familiar with the principle on which milk is condensed and the other principles on which milk is preserved for use long after it is drawn from the cow?—I am familiar with the general principles upon which the condensation of milk is conducted, but I have never actually been in a Condensed Milk factory, and I cannot speak therefore with personal knowledge as to the details of the manufacture.

358. What is your view with regard to the relative merits of condensed milk or milk preserved as a food as compared with freshly drawn milk?—I should certainly be of opinion that condensed milk would be inferior as a food to fresh milk.

359. I take it you believe milk is very often a source of infection to human beings?—Yes, I do.

360. And when exposed to the danger, it most readily assimilates disease germs and distributes them to human beings?—Well, I cannot exactly subscribe to the term "assimilate." Milk is an excellent nutrient medium for most, but that it has any power of attracting disease germs to itself, as I have sometimes heard stated, I do not believe.

361. If I used the word absorbed instead of assimilated?—The term "absorbed" seems to connote or indicate a certain power of attraction or action. We speak of a sponge as absorbing, but that is not exactly the case with milk. What happens with milk is, that a disease-germ gains access to it, just as any particle would gain access. Milk has no more affinity for disease-germs than for dead particles of any kind.

362. So that any liquid might be as easily infected as milk?—Yes, and the only difference is that milk affords excellent nutritive conditions for a number of disease-germs.

363. I see that you believe that infectious diseases such as typhoid, tuberculosis, and infantile diarrhoea are very often caused by infected milk?—I am of that opinion.

364. And you have in your experience and investigations satisfied yourself that infection has been conveyed by the milk supply?—I have.

365. You dealt with an outbreak in the Pembroke Township some time ago in which it was alleged that diphtheria was also disseminated in the same way?—Yes.

366. And the result of your investigations in that particular case did not entirely confirm your belief that it was so?—No, I do not hold a very strong view with regard to diphtheria. I have not sufficient experience to form any definite opinion on the matter. I know that others have found what appears to them to be conclusive evidence, and other equally good authorities remain sceptical on the point. I prefer not to express a definite opinion.

367. But you are quite convinced that enteric fever is a malady sometimes arising from infected milk?—Yes.

368. And I see you had an opportunity of carrying on investigations under the War Office?—It was under the Local Government Board, as a matter of fact.

369. It dealt with officers, and I assumed the War Office might be responsible?—The War Office sent their own doctor, a doctor of the Royal Army Medical Corps, Captain Burgess. The victims were some 25 in number, and all consumed, in an unboiled condition, the milk from a certain dairy. The girl who acted as

day-maid was found by myself and also by Professor More of Queen's College, Cork, to be excreting typhoid bacilli in the urine. She had suffered from a severe attack of the malady some years previously. It is unnecessary for me to go into further details, as the facts are fully set forth in my reports to the Local Government Board (38th Annual Report, page 103, and 39th Annual Report, page 86), and also in that of the Medical Inspector, Dr. Browne (38th Report of the Local Government Board, page 66).

370. That brings us to the very interesting question of the typhoid carrier; the theory with regard to the dissemination of typhoid germs?—It has got beyond the stage of being a theory. It is as well demonstrated a fact as any in the whole of Bacteriology.

371. Do you subscribe to the theory that in order to secure the public against the danger of contamination from that source, it would be desirable that those who are engaged in handling milk should be subjected to the Widal test?—Yes, that is an opinion to which I most heartily subscribe. I am clearly of opinion that no person should be allowed to handle milk in the dairy or milk co-ops on the field whose blood gives a positive reaction to the Widal test. Moreover, this is an eminently practical proposition, inasmuch as the Widal test does not involve any pain, inconvenience, or loss of time to the subject. So far as the person tested is concerned, the whole procedure is over made half a minute. It is just a mere prick which causes no appreciable pain.

372. And there has been no general experiment carried out to determine what percentage of ordinary healthy human beings may react to this test?—You can get it in this way—practically the only persons who come into play in this matter are persons who previously had an attack of typhoid fever. Ordinary human beings do not react to the Widal test when it is conducted under proper precautions. Most extensive investigations have been made in Germany as to how many of those who have had a previous attack of typhoid fever continue to excrete the germs, and out of 100 persons who previously had typhoid about 3, roughly speaking, continued to harbour the germs.

373. Has it ever been ascertained that an individual who never had typhoid fever would react to this test?—Yes, because there are persons who have suffered from the infection—ambulatory cases—in so mild a form that they or their doctors have failed to recognise the fact, and that is why it would not do to content oneself with inquiring from dairy assistants as to whether they have had a previous attack of typhoid.

374. Mr. WILKES.—Might I ask whether the hundred cases to which the Professor refers are supposed to include these ambulatory cases?—Yes.

375. And five per cent, approximately of typhoid cases become carriers?—Yes.

376. Is there any means of ascertaining how many of the ordinary population have typhoid?—I cannot mention the percentage.

377. Would it be obtainable anywhere?—I think the Registrar-General's statistics and the reports of the Medical Officers of Health might give the necessary information.

378. Prof. MERRIX.—Of course, it is a well-known fact that people might give the Widal test and not be typhoid carriers having recovered from typhoid?—Yes, but a year afterwards I should say the persistence of the Widal test would very strongly suggest the suspicion that the person who gave the test would be a typhoid carrier.

379. If a person has recovered from typhoid and still gives the positive Widal reaction after three months, it would to a certain extent show that he was a typhoid carrier?—It would tend to make one suspect it very strongly, and if he were a dairy employee to obtain and examine specimens of his excreta.

380. Sir JOHN LINTACK.—The Widal is a perfectly harmless test, and up to instance whatever can do an injury to the individual?—That is so. The only thing that is done to the individual is that a few drops of his blood are taken, and this can be done quite painlessly.

381. Dr. MORRISON.—Do all patients after typhoid react within three months?—No, the reaction of the blood disappears in some people sooner than in others, but it may be said that as a rule the reaction is in most cases reduced to very small dimensions after three months. It must be borne in mind that there are cases in which the reaction is only slightly in excess of that offered by normal blood. If there was still a strong reaction after three months I would suspect that the patient might be a carrier.

395. How long has a patient remained a carrier?—Well, I am afraid that one must say in spite of all the effects that have been adopted, that "once a carrier, probably always a carrier." I have myself observed a case in which a patient whom we took into the hospital, and whom we treated medically and surgically for over a year, was discharged with the excreta free from germs. She was free from germs for six weeks before she left, but I am by no means certain that we cured her, as she refused to give us further facilities for examination.

396. Sir JOHN LESTRAICHE.—You are of opinion that it would be better to have all persons connected with the dairy industry and handling milk, tested?—Yes.

397. Miss McNEIL.—Would you be satisfied with one examination?—For practical purposes one examination would suffice. I have never come across cases in which it was about one day and extremely strong the next day.

398. In the case of a dairy worker, if one negative result was obtained would you consider that a sufficient warranty to allow the person to continue his occupation?—That is a question one would like to think about before answering, because sometimes we find the blood reacting more strongly against one strain of typhoid bacilli than against another, and we have the possibility that the patient's serum might agglutinate the Paratyphoid bacillus—a bacillus which is closely allied to the typhoid bacillus and which is the cause of a disease allied to typhoid and also known to be propagated by milk. I am of opinion that where the problem to be decided is whether a given person is or is not to be allowed to handle milk the Widal test ought to be carried out—not by any ordinary doctor, but by a skilled bacteriologist with a well equipped laboratory at his disposal.

399. Dr. MACDONALD.—Do you speak of living cultures as the reaction?—Yes.

400. Can there be any reliable results from a dead culture, do they react?—They do, and methods have actually been introduced to enable clinical physicians to apply the test by a dead culture. I myself have always used living cultures, and the general impression left on my mind is that living cultures are superior to dead ones. In fact, I am of opinion that the Widal test is not one that could be very satisfactorily applied by the ordinary practitioner. The tests should be conducted in a properly equipped laboratory.

401. Mr. O'BRIEN.—Does it take long to see whether the blood will react—would it be possible to get all people's blood tested?—Quite possible. Of course, several investigators would be needed, but the thing would be quite possible. You could send the people living within the Belfast sphere of influence to a Belfast specialist, and in Dublin to a Dublin specialist, and so on throughout the country.

402. There is a sufficient number of people whose business it is to do this—Bacteriologists, and not ordinary practicing physicians?—Certainly.

403. Sir JOHN LESTRAICHE.—Can an ordinary practicing physician do the elementary work of drawing the blood and sending it to the laboratory?—As a matter of fact, a great many doctors do not seem to have acquired the technique necessary to collect the blood in sufficient quantity and in a satisfactory way to conduct the Widal test. I am in the habit of receiving specimens from practicing physicians which are quite inadequately taken. There is not enough blood and it is not properly sealed up in the tube.

404. Mr. CAMPBELL.—How many tests could be made in the course of a day in a laboratory by one man?—By one man, I mean a man working with his assistant. I always use my own qualified assistant or a laboratory porter whom I have trained. It is difficult to say the number a man could make in a day. When you are doing a number of them together it takes a shorter time than when you have to put up all the apparatus to do a single one. With my laboratory resources I could do 30 or 40 Widal tests a day. I might be able to do even 50 perhaps.

405. It would be necessary only to subject to the test milkmen and the persons carrying the milk to the town and the people selling it in the shops—you would not require to test the persons who feed the cattle?—No, only the people who have the handling of the milk. Of course, milk ought to be as little handled as possible. The danger of infection would be lessened greatly by insuring that dairy workers were perfectly clean in their persons and in their mode of manipulating the milk.

406. If a typhoid carrier was perfectly clean in his or her habits, there would be very little danger?—If the hands were thoroughly clean, perhaps nine-tenths of the danger would be obviated. I don't really know why it is that dairy employees are generally so lastingly dirty. In Berlin, if any person who has anything to do with the milk or food supply shows himself in public in obviously dirty clothes, or whose hands are dirty, he can be lawfully washed by the police.

407. Mr. WILSON.—Would you be prepared to recommend that?—I would. It would provide excellent work for some of the muscular members of the local police force.

408. You would then, I gather, be of opinion that the use of milking machines, and of any labour saving appliances which do away with the contact between the skin of the human being and milk, would be a protective agent?—Yes, a most excellent protective agent.

409. The CHAIRMAN.—The presence of typhoid germs in a human being, or the fact of his being a carrier, does not necessarily impair his personal health?—He may apparently be in perfect health.

410. And unconscious that he is a typhoid carrier?—Yes.

411. Of course, the danger is enormously increased thereby?—Yes.

412. Lady EVERARD.—Is it only milk that a typhoid carrier can infect?—He can infect any article of food that he comes in contact with, and instances have been known where various articles of food have been contaminated by carriers.

413. Sir JOHN LESTRAICHE.—Is not milk a thing he is very likely to infect?—Experience has shown that it is so.

414. Mr. O'BRIEN.—And water?—Well, water is generally supplied from a tap or pump, and I don't think that water is usually manipulated in the same way as milk.

415. Water used for washing the milkers' hands might contaminate the hands of other milkers?—Yes, water might undoubtedly be contaminated in that way.

416. Water that is so contaminated with typhoid germs and drunk by cows, do the germs pass into the milk?—I think not. There is no evidence whatever that a cow is capable of being infected with the typhoid germs.

417. Sir JOHN LESTRAICHE.—Is the infected material carried in the excreta?—The virus of typhoid is present in the excreta, both solid and liquid, usually in the solid excreta; comparatively seldom in the urine. The case to which I have referred to at length in my notes was a urinary carrier and never had any of the bacilli in the solid excreta.

418. The CHAIRMAN.—Do you regard the ordinary housework as a common agent by which milk may be infected?—I think it is very probable that in a small minority of cases infection takes place from flies.

419. Mr. O'BRIEN.—There should be in that case very considerable danger anywhere, and particularly in the country, from flies settling on any solid excreta with germs in it—they can carry it away?—Yes, on their feet.

420. If they drop into milk then?—Yes, and if a sufficient length of time was to elapse to allow the germs they had dropped into the milk to increase and multiply.

421. Sir JOHN LESTRAICHE.—And the obvious remedy is to keep the milk covered?—That is a most important thing. That should be most vigorously enforced.

422. Mr. O'BRIEN.—The flies can take it into water that is used for washing?—Flies seldom die in water. They die in milk.

423. If they fall into the water would they release any germs that might be clinging to their feet?—No doubt they would. What brings them into contact with milk is that they are attracted by it.

424. Mr. CAMPBELL.—The sanitary arrangements for farm workers, so as to prevent flies from the excreta getting into the milk, is perhaps more important than the danger of flies coming from the manure heap?—So long as the manure heap is composed of manure solely derived from animals I don't think it comes into play with regard to this question, but I have frequently remarked that the human excreta are thrown on the manure heap.

425. But more frequently about the dairy premises it is to be found at some distance, and the question is whether the Inspector follows that up?—I think that

in all dairy yards the methods for the disposal of human excreta require the closest attention, and as Ireland they are most imperfect and are highly calculated to allow of the transfer of germs.

424. At the present time no attention is given to that matter?—I would not like to say that no attention is given to it. If I were a Veterinary Inspector I should pay attention to it.

425. But you are not?—No.

426. Prof. MERRILL.—Is not that a question for the Medical Officer of Health?—Yes, or one of his Sanitary Sub-Officers.

427. Mr. CAMPBELL.—The premises are inspected by the Veterinary Surgeon, and not by the Medical Officer of Health?—I was under the impression that someone else was entitled to go and inspect.

428. The CHAIRMAN.—I think it is only in a case in which a prosecution was pending that the Medical Officer of Health would then be requested to come in and make, if I may say so, a super-inspection over and above the subordinate dealing with the question of the administration of the Dairies and Cowsheds Order?—If so, that is a most important flow to my mind.

429. The Relieving Officer can always report to the Medical Officer of Health on certain conditions prevailing in certain localities, and it then becomes his duty to inspect the place to determine whether the conditions are injurious to the public health?—Is the Relieving Officer a Sanitary sub-officer?

430. He is. It is his duty in the first instance to make an inspection in order to see that things are in accordance with the regulations laid down, and if, in his opinion, there is anything of variance with these Orders to report to the Medical Officer.—The Sanitary sub-officer is supposed to have some little special training, and I think that ought to suggest to him the inspection of the mode for the disposal of human excreta.

431. Mr. O'BRIEN.—Supposing legislation was passed compelling all milk suppliers to be licensed, not registered—that is to say, that the premises should be inspected before the licence was given, you think it would be very important in such cases that there should be proper provision for the disposal of the human excreta?—I think it is of the greatest importance. It goes to the root of the whole question.

432. Would not that be difficult in the country?—I don't say that. They have plenty of space in the country, and wherever houses are put up they are supplied with out-offices, and these are often converted into hen-houses.

The CHAIRMAN.—That is so.

433. Mr. O'BRIEN.—It is an awfully difficult thing to get people into the habit of making use of the proper provision?—You must educate the people by a judicious mixture of warning and punishment.

434. Sir JOHN LESTER.—Is there any way by examining the milk of knowing whether that milk is safe or not? You said you have not succeeded in isolating the typhoid bacillus from milk?—Yes. The isolation of typhoid bacilli from milk is difficult. If you add typhoid bacilli artificially to milk the problem is narrowed down and it is possible, even then not without difficulty, to isolate the bacillus, but I attach no great value to negative results from bacteriological examination of milk, and I have in many cases endeavored to dissuade Local Authorities from sending me samples for bacteriological examination.

435. Mr. CAMPBELL.—Perhaps you are not aware that the Inspectors are lay men in a large number of cases. If that was to continue would it not be desirable that these people should get instruction as to what they should look for when they make an examination of the premises?—Yes.

436. And that something should be done to co-ordinate the methods of the Inspectors?—Yes.

437. From your knowledge you know that there are many Veterinary Surgeons who take quite different views as to what is sanitary or not?—Oh, yes.

438. Sir JOHN LESTER.—Are we to understand that special directions should be issued for those persons in the discharge of their duties?—I would leave them as little option as possible. I would supply them with a form. I don't think any inspection is of any use if the things to be inspected are to be left to the will of the Inspector. The examination ought to be converted into an almost mechanical process.

439. Who would be the central authority who would issue these directions?—Under the existing conditions, I think the Local Government Board.

440. Miss McNEILL.—There is something in that way done in several of the American States—they have score cards for the inspection of dairies, and the Inspectors must return these?—Yes.

441. The CHAIRMAN.—How far is pasteurisation a safeguard against the presence of typhoid germs in milk?—It is relatively easy to kill typhoid germs in milk by pasteurisation. A temperature of 140 or 150 Fahrenheit kept up for a few minutes will kill the typhoid bacilli.

442. Have any experiments been carried out to show that milk can be rendered harmless by pasteurisation?—In the case of typhoid no such experiments could be conducted, because you cannot produce typhoid fever in animals by giving them milk with germs. You would have to experiment on man, and that is not permitted.

443. How far might the consumer feel that he was protected from this danger by using milk that was subject to pasteurisation?—From what we know of the habits of the thermal death times of the typhoid bacilli it would be quite easy to determine a pasteurisation temperature which would be sufficient in order to completely free the milk from all suspicion or danger of having the infection of typhoid.

444. Miss McNEILL.—If milk is drawn for a long time before it reaches the consumer, the danger of the milk being infected is increased by the length of time?—Yes, by the interval between the entrance of the germs into the milk and the time it reaches the consumer. The reason this is important is because it does not hold good in tuberculosis. Typhoid would multiply at all temperatures between 8 or 10 degrees centigrade and 40 degrees, which is over blood heat.

445. Tubercle bacilli do not multiply?—No, they do not multiply until you get up to somewhere about 20 degrees, and even then very slowly. If the milk were kept cool below 10 degrees, from the time it left the cow or received its supposed infection, I think that would be a fairly good safeguard. It would check multiplication.

446. That is a low temperature?—Yes.

447. Mr. O'BRIEN.—It would set as a precautionary measure to have the enormous quantity of milk brought by train, involving hours of travelling, conveyed in refrigerating cars?—Yes, and that applies to all objectionable bacilli that find their way into milk and render it unsuitable for young children.

448. Lady EYRE.—Milk heated to what degree will kill typhoid?—They are not very heat resisting. In answering a question like that one must have regard not only to the temperature but to the length of time the temperature is kept up. When sterilising Typhoid vaccines, I use a temperature of from 55 to 58 degrees Centigrade kept up for an hour. I am speaking now of laboratory experiments in sterilising vaccines. On the other hand, when dealing with large quantities of milk we have to provide against all sorts of contingencies, and accordingly I think it is better that we should say that a temperature of from about 60 to 65 degrees Centigrade be kept up for about 5 minutes at least.

449. Dr. MOUNTAIN.—Pasteurisation is a perfect precaution against the germs if properly carried out?—Yes, and the whole gist of the matter lies in the words "if properly carried out."

450. Miss McNEILL.—The risk of imperfect pasteurisation of milk in large quantities is greater than in small quantities?—The difficulty is heating increase in geometrical progression as the bulk of the mass increases.

451. Dr. MOUNTAIN.—Does the pasteurisation alter the character or interfere with the nutritive quality of the milk?—That is a very big question indeed, upon which the most widely divergent views have been expressed by apparently competent authorities and supported by statistics. All I can do is to give a general impression. I am of opinion that when you heat milk above 130 or 140 Fahrenheit you destroy certain enzymes that are in it which probably have a certain indirect effect upon the nutrition.

452. Prof. MERRILL.—The milk becomes de-vitalized?—Yes, and experiments are undoubtedly unwittingly carried out on the human subject on a large scale. When small children are taken from the mother at a month or so and brought up on milk of that kind, they sometimes develop a trouble called "scurvy scists."

I know of a case of it in a child as a family I know well. I know the whole details of that case, and I know how the mother acted. She used one of those apparatus (Sokollet) that must have carried the milk to within a few degrees of the boiling point.

433. Miss McNamee.—That is what is generally done for domestic purposes?—You must let me say, but it should be assumed that I am an opponent of sterilization, that I am in no way opposed to the practice on a large scale of pasteurizing children's milk.

434. Dr. McNamee.—Is there anything you can put into the milk to make up for what is taken out by the pasteurization?—The juice of fruit—of an orange or grape—or the juice from raw beef—might be used to replace the strength which the milk has lost in the process of heating.

435. Lady Eyreman.—Is it your experience that milk when pasteurized if left uncovered absorbs the germs?—It has the same power of absorption as any other fluid. The fact that a great proportion of the germs have been removed by the process of sterilization gives greater scope for the development of any germs that may fall in—dirty germs. Accordingly, I am rather of opinion that pasteurized milk left to itself for a long time and exposed to the air may come to be a more dangerous sort of milk than the ordinary unpasteurized milk closely bottled.

436. Prof. Murray.—One explanation is that the putrefactive organisms as a rule form spores, and the spores are not killed?—That is an essential fact which is not as well known as it ought to be, and it was first placed on a firm basis by Flügge. He showed that the ordinary pasteurization leaves in ordinary milk a number of spores which are not killed. You may recognise their presence in milk by the peculiar bitter taste, and such milk taken by young children may produce infantile diarrhoea.

437. Sir John Listerman.—The lactic germs are acid-formers?—Yes, they are a powerful protection against the putrefactive process going on in the milk. Milk does not undergo ordinary putrefaction. It becomes intensely sour, but not until a very advanced stage does it emit a putrid odour.

438. Mr. Winton.—I have got here statistics from Copenhagen dealing with the grave effect of putrefaction after pasteurization. The figures are given in the annual medical report for Copenhagen for 1903, and show that 35 out of 105 samples of pasteurized whole milk contained upwards of 1,000,000 bacteria per c.c., and that these consisted chiefly, not of lactic acid bacilli, but of bacteria of putrefaction, and the conclusion arrived at is that "there are serious doubts as to whether it is advisable to endeavour to obtain general pasteurization of market milk, as has been suggested by many."—In that I fully agree. The word "general" is the kernel of the whole question. I don't think any moderate, fair-minded statistician would go so far as to demand a general pasteurization of the milk. We all know from practical experience that we can drink our milk in our tea and coffee, and many of us take our luncheon on a glass of sterilized milk without any ill effects whatever. It is only in the case of infants and the milk supplied to the poor that the question of pasteurization and sterilization comes in.

439. Mr. Cameron.—I should like to go back to the question of the production of milk again and the danger of flies. What is the danger you fear from the manure heap with regard to disease if the human excreta are not there?—With regard to diseases generally do you mean?

440. You.—Well, of course, the manure heap is the source of the most varied kinds of dirt. The proximity of a manure heap to a dairy in which large quantities of milk are being manipulated, and above all, kept in open vats, etc., to which flies have access, would be a most powerful means of infecting the milk with all sorts of dirt germs.

441. What I get to you is that when the manure heap is wet or moist the only thing that can come from that is the smell?—Yes.

442. Is there any disease in the smell?—No; I don't think there is any whatever.

443. And, therefore, there is no danger to the milk from that smell?—No.

444. The danger comes in from the actual bacteria going in?—Yes.

445. From the heads or the clothes of persons who have come in contact with the manure?—Yes.

446. It would be possible to set a pitcher of milk on the manure heap, and, barring accidents, no bacteria would fall into it?—No.

447. Sir John Listerman.—What about the flies?—Mr. Cameron.—We are talking of the emanations?—I don't profess to be a very practised person in getting a taste or smell of milk, but persons of great experience tell me that milk is a very powerful absorber of bad smells. That seems to me a very doubtful proposition, and one to which I would not be prepared to assent without further investigation.

448. The question has a very important bearing on this subject. From the manure heap you have got ammonia and other gases. You don't consider that these do the milk any harm?—I don't know that they do. At the same time, on what one may call æsthetic grounds, the presence of a large heap of decaying matter in close proximity to milk is objectionable. That manure heap is full of the most objectionable germs. Its proximity to the milk is undesirable if it could be avoided.

449. Yes; but so many people have got it into their heads that the smell and bacteria are one and the same thing?—That is absurd, of course.

450. The odour from the manure heap is one thing and the bacteria another?—Yes.

451. In the summer, when the manure heap is dry, there is no danger?—Yes.

452. But when it is wet the danger is mainly from it coming into contact with persons' clothes and hands?—Yes. So long as manure is thoroughly moist it does not give out any germs. Many of the heaps are dry at one time and wet at another. The proximity of a large heap of decaying organic matter to a dairy is most objectionable.

453. Lady Eyreman.—Is it not a fact that milk will take the smell of flowers?—They say so.

454. The Chairman.—It also takes the odour of fruit?—I have heard these things. I don't know what the physical explanation is. I have heard the assertion so confidently made that I do not like to contradict it, but I do not understand the physical way in which it is brought about.

455. Mr. O'Brien.—Butter has also that power of absorbing?—I did not know that.

456. What I mean is, if you have butter in a larder, the butter being covered up with muslin, and your meat being in a safe of perforated zinc, and all flies kept out, that the butter coming from the larder will often taste of the meat. I suppose that power would be to a less extent in milk?—We know from meat work that lipids, which are the active bodies in fats, have a powerful effect in attracting to themselves or neutralizing the action of various ferments secreted by the body. It may possibly be a phenomenon of that kind.

457. Sir John Listerman.—What is the smell from a manure heap due to?—It is due to the evolution of foul-smelling gases, and they are due to the result of the activity of putrefactive organisms.

458. Mr. Winton.—We had a witness yesterday, Sir Charles Cameron, who expressed the opinion that local authorities should have the power to stop a milk supply from a suspected dairy—where there was no actual proof of infection in the house—that there should be the same power in presumptive cases as in proved cases. In your memorandum you say that one of the difficulties is that the milk for analysis is sent too late?—I said that was a reason why I did not succeed in isolating the typical bacilli. The milk was sent four or five weeks after the occurrence which it was desirable that I should find evidence of in the milk.

459. Your evidence would rather support the view of Sir Charles Cameron that power should be given to stop the supply from a suspected dairy?—Yes, if there was epidemiological evidence that the milk was the vehicle of the infection.

460. The Chairman.—Did you make any examination with regard to an outbreak of typhoid that occurred in the Clontarf district?—I did.

461. I should be glad if you gave us your experience of that particular case?—Before giving you any details of the kind you ask I should have to reflect for a moment as to my exact position in the matter. In this outbreak I acted, not for the Corporation or the Local Government Board, but in my capacity as a private bacteriologist.

Prof. Murray.—I may say that I was associated with Dr. McWheey in the matter, and I would rather the question was not asked.

481. The CHAIRMAN.—Very well. I only put the question in view of the fact that it was a very recent occurrence, and if any information was to be elicited in reference to that outbreak, I thought that it would be desirable that it should be brought out. Of course, I have no desire to prejudice the opinion of anyone.

Witness.—It is a matter of professional etiquette.

482. Lady EVELING.—Sir Charles Cameron said he considered that separated milk from creameries acted as a powerful distributing agency of disease. You have made the same remark in your memorandum?—There is no doubt about it. There is epidemiological evidence for the last ten years collected by the Local Government Board.

484. Your opinion is that separated milk sent out from creameries ought to be pasteurised?—Yes.

485. Prof. MERRILL.—You are aware, Professor McWaters, of the cases that have been shown in England of diphtheria being conveyed in the milk. The point I would like to ask you is this—do you think that diphtheria is a disease *per se* of the cow?—No. I have often found bacilli of the diphtheroid type in the milk of the cow.

486. You find it in the throats of men?—Yes. I do not think that diphtheria is a disease of the cow.

487. And as regards scarlatina, do you think that scarlatina is not a disease of the cow?—There have been cases brought forward to show that that is the case, but I am not convinced.

488. As regards infantile diarrhoea, to what is that ascribed?—I have not had time yet to assimilate the very latest literature on the subject, but my impression is that it is due, not to any specific bacilli, such as those of typhoid or tubercle, but to the action of too many common bacilli, and-formers in some cases, putrefactive in others, on the gastrointestinal tract of the young child, which is fitted only to deal with milk that is sterile or nearly so.

489. The CHAIRMAN.—With regard to the bacilli of tuberculosis, I understand from you that the ordinary course of pasteurisation is not sufficient for their destruction?—I really don't know what you mean by the ordinary course of pasteurisation, because it appears to me that there are nearly as many systems of pasteurising as there are dairies. It would be well to agree on an effective method, and insist upon its uniform adoption.

490. What temperature would be necessary to secure the destruction of the bacilli?—I have referred to the best available authorities on the subject, and I have made out a little table that may perhaps be of use to the Commission. I am using Fahr. degrees now. 134 degrees has been found to kill tubercle in four hours; 140 degrees in one hour; 149 degrees in a quarter of an hour; 158 degrees in ten minutes; 176 degrees in five minutes; 185 degrees in from one to two minutes. This applies to milk that is being pasteurised under laboratory conditions, as distinct from practical conditions, but according to reliable observers, especially in Germany, 138 degrees Fahr. would need to be kept up for half an hour in order to ensure the complete destruction of the bacilli.

491. Miss McNEILL.—That is 158 degrees after the entire bulk of the milk had arrived at the temperature?—Yes. The reason why there is so much divergence in the experimental results of different authorities is that some fermentation and froth formation largely complicate matters.

492. Prof. MERRILL.—It is easier to pasteurise separated milk than whole milk?—Yes, because it does not form a scum.

493. Mr. O'BRIEN.—Having it in a closed vessel like a tube, does that get rid of the scum or froth?—Certainly. The cooling, I frequently remark, is most unsatisfactorily carried out. The hot milk is spread out in a thin layer over a cooler, and is liable to take up any germs or odours emanating from neighbouring manure heaps.

494. Where the pasteurising plant for a large bulk of milk is used—as in creameries—there would seldom be a manure heap about?—There is often a heap of cessary manure, which is most objectionable. Separator sludge is about the most objectionable thing one could deal with, and that is often on the ground near a creamery. The plan of cooling the milk, as I have said, is objectionable unless the milk is unusually pure, and it cannot be very pure, because there is oil on the residuary, and people are working about. May I add

one word about this temperature question, which is one of the most difficult questions that a scientific man can be asked to pass an opinion on, more especially when his words may be used to found legislative proposals on. I find that in the case of milk pasteurised in small quantities that 15 minutes at 70 degrees centigrade—158 Fahr.—are said by the most competent German authorities to be adequate.

495. That is half the time for pasteurising on a large scale?—Yes.

496. Mr. CANNELL.—Is that for tubercle?—Yes, and a *ferrière* for the others.

497. The CHAIRMAN.—When milk is pasteurised in small quantities it needs a shorter time?—Yes.

498. You apparently believe that the tubercle bacilli sometimes come direct from the cow in the production of milk?—Yes.

499. Did you demonstrate at any time that this is so by practical experiments?—Well, it must be borne in mind that I have no official position requiring me to examine samples of milk with that object. It is only now and again at intervals that I have to conduct an examination of milk for tubercle bacilli, and in many cases the samples sent to me are in the condition I have stated in the proof of my evidence. The milk of a certain dairyman is suspected of giving tuberculosis, and a sample of milk is sent for analysis. Meanwhile, the dairyman has time to take precautions, and the result is that the bacteriologist fails to find them. Quite recently I had a case in which I detected acid-fast bacilli in moderate numbers in a sample of milk, but the animal experiment I did was not a success. I injected it into a guinea-pig, but the guinea-pig failed to contract tuberculosis. However, putting my own personal knowledge aside, I have no doubt whatsoever from the results of experiments made by Sir Robert Boyce at Liverpool and Dr. Delphens at Maastricht, that by sedimenting milk with powerful centrifuges, and subjecting into guinea-pigs part of the sediment, you get quite a large percentage of cases of infection.

500. The CHAIRMAN.—Do you think the ordinary examination made by the veterinary surgeon is sufficient in the case of infection of the udder?—I am not a veterinary surgeon, and I have not made very many examinations of the udder. His opinion would have a very high negative value if he did not find any bacilli. It would be presumptive evidence that there was none.

501. Mr. JOHN LEWIS.—The most reliable bacteriological test is the inoculation?—Yes.

Mr. WILSON.—Is there any animal so dangerous to the public health as the cow with the tubercular udder?—No. The clinically and obviously tubercular cow is the greatest source of danger to the public health.

502. And if it was possible to weed out all the cows of that class should we be taking away one of the most dangerous factors in the whole dairying industry?—I think we should be conferring a great benefit on the people by weeding out what is undoubtedly a source of a certain amount of tubercular disease.

503. At the present time there is very little legal machinery for doing this?—I am not a legal expert, and of the exact amount of legal machinery I am not competent to speak; but in the second part of the Tuberculosis Prevention Act, 1908, rather extended powers are given to Sanitary Authorities to search in their districts for tubercular udders, and to have the animals condemned; and I am also under the impression that in big English cities they have got private Acts of Parliament conferred on them, giving extensive powers in this way, of which they make most excellent use.

504. The CHAIRMAN.—Do you think it would be a safeguard to the public health if similar powers were conferred on Dublin?—If they used the powers they possess in a more energetic and systematic manner something might be achieved. I think there is a great lack of energy shown in Dublin in regard to this matter. There is no systematic action taken for the protection of the citizens.

505. We have heard from Sir Charles Cameron yesterday that a very considerable portion of the milk supply from Dublin comes in from the country by rail?—Yes.

506. And that the Local Authority have got at present practically no power to forbid the continuance of a supply from a suspected source of infection. The only power they have is that their officers can attend at the railway termini and make an inspection of the vessels in which the milk is supplied, and if there is any evidence of want of cleanliness he can then take action, but it is impossible for him to forbid the con-

tinuous of the supply from the district supposed to be infected. Do you think that that is safe for a city like Dublin?—No. It is absolutely unsafe. I think it would be of the highest possible importance that the officials of the Public Health Department should have the power, first to take samples of milk coming in from outside by rail, entirely irrespective of the appearance of the vessels, and I am of opinion that the system should include the sending of these samples of milk in large numbers to some bacteriologist, who will be able to ascertain whether they are tubercular or not. If he finds the sample is tubercular the Public Health Authority ought to have the power to make a careful inspection of the cows. The infected cows should be destroyed, and compensation given to the owner according to the special circumstances of the case.

307. Mr. WILSON.—You would insist on destroying every clinically tubercular cow that was discovered?—I would think so.

308. Sir JOHN LESTER.—As regards the samples you send to the bacteriologist, you would not be satisfied merely with the microscopic inspection?—I would consider it of no value whatever. A negative result based on microscopic inspection has no essential value. The question of destroying cows is one of the most difficult of all the questions that could be put to a man looking at the matter from the practical point of view.

309. Do you think that any person who has been warned that his cow was tubercular, and who sells the milk, should be punished?—Yes; he has committed a crime against society.

310. Prof. MERRAN.—Is it not a fact that a cow that is perfectly normal as to the udder may pass tubercle bacilli into its milk?—There have been some investigations on this point.

311. Is it not shown in the Report of the Royal Commission on Tuberculosis that substantial inoculation of bacilli had been followed in twenty-four hours by the appearance of tubercle bacilli in the milk, so that it would be rather hard on the owner of cattle if he was charged with sending milk having tubercle bacilli in it?

Mr. WILSON.—I take it that any cow whose milk was found on examination to contain tubercle bacilli would *ipso facto* be slaughtered?—Yes.

312. Prof. MERRAN.—I take it that Professor McWheesy is of opinion that all cases of open tuberculosis should be seized and should be destroyed?—Yes.

313. The question of compensation, of course, would arise afterwards?—Yes.

314. Lady EVERARD.—Would the calf get tuberculous from the cow?—Yes, as a child would get it from its mother's milk.

315. Do you consider that a cow suffering from tuberculosis is a source of danger to the rest of the herd?—I consider that the cow affected with open tubercle yielding the bacilli through any of the natural orifices of the body is a source of danger to the human race and any of the cows that are with it. This danger in the open air is not so great, but if the cows were housed together it would be very dangerous to the other stock.

316. Mr. CAMPBELL.—We want really to get rid of tuberculous. What is standing in our way is the fact that we dare not at the present moment, for want of a proper public opinion, advise farmers to test their cows and see if they react. Public opinion will not allow that being done. The Department was very anxious to help in this matter by adopting the system of applying the tuberculin test. By that means we could readily separate the cattle into three that are sound and those that are unsound. Many of the animals that react are sold, and the very finest cows in the country react. Our advice to the farmers was to have these animals tested and separated, but questions were asked in Parliament, and we were forced to withdraw our leaflet containing the advice?—What was the objection? Was it about the meat being affected?

317. I don't suppose there is any danger whatever from the use of meat from these healthy-looking cows?—No.

318. The CHAIRMAN.—As to the question of tubercle bacilli in the cow, I see in the second part of your evidence you indicate that you had carried out experiments at the Albert Model Farm in 1901 with regard to the dairy stock then in existence there?—Yes; that is so. The problem that I was anxious to solve was, first

of all, whether the tuberculin test was a reliable one, and the second part of the problem was to ascertain whether tubercle bacilli were present in the milk of the cows which merely reacted, but which apparently were not otherwise affected. The first part does not concern you except indirectly, but the results were an additional confirmation of the value of the tuberculin test.

319. You did not proceed to slaughter the cows?—We slaughtered the whole of the stock, and I was present at the slaughtering, and I was able to ascertain in practically all cases that reacted that there were tubercular foci. The foci were present in the mediastinal glands; sometimes in the bronchial glands, and sometimes in the lung. In very few of the cows did we find any evidence of active tuberculosis. I was able to ascertain that the tuberculin test gave reliable information as to the presence of tuberculosis, though it did not give any information as to the extent. In fact, I rather got the idea that the more slightly affected cows gave the most vigorous reaction. Then, as regards the presence of tubercle bacilli in the milk of such cows, I tried first with the microscope to find them, but in vain. Then I tried inoculating guinea pigs. I applied to the Department of Agriculture for a grant for the purposes of experiment, and I obtained it. Guinea pigs were procured, and I tried centrifuging the milk and inoculating guinea pigs, but never got a positive result from reacting cows otherwise quite healthy. A much larger series of experiments was carried out by Professor Osterling with all the resources of the German Imperial Health Office, and he failed to trace any case of tubercular infection from such milk, but subsequent researches seemed to show that it is possible. Professor Metten showed that the udders of cows which were apparently well might pass tubercle bacilli into the milk. Some people take an exaggerated view of bovine bacilli. I think it comes fairly within the terms of the Commission for me to state that bovine bacilli have a much greater degree of virulence for other mammals than human bacilli, but human bacilli are more dangerous for man.

320. Mr. O'BRIEN.—Are human bacilli to be found in cows?—Human bacilli are not found in cows, so far as I know.

Prof. MERRAN.—They are.

Professor McWHEESY.—I was not aware of it.
321. Mr. O'BRIEN.—If there is a person in charge of cows that is in an advanced state of consumption, a cow may get infected with the human tubercle bacilli?—Attempts to infect cows by human tubercle bacilli have generally been a failure. I don't wish to say that human tubercle bacilli might not affect the milk afterwards.

322. Prof. MERRAN.—Is it not a fact that human tubercle bacilli may infect animals?—Yes; they may infect guinea pigs.

323. And cattle?—I was not so sure about cattle.

324. What about the old researches of CHATELAIN. Did not he show that cattle might be infected?—I don't know.

325. And the same thing also applies with regard to Nocard?—I was not aware. The impression I had was that Koch had a large amount of his opinions, which have since been found to be erroneous, as to the non-infectivity of cattle upon the negative results of his experiments. He tried repeatedly to infect cattle with human bacilli, but he was not able to do so.

326. If the bovine bacillus is capable of infecting all animals, is there any reason why man should be excluded?—I don't say that man should be excluded. I do not think that bovine bacilli are as virulent for human beings as human bacilli are, and I base that opinion upon the results of post-mortem examinations.
327. These have been controlled by post-mortem examinations?—I don't think you quite get my meaning. The post-mortem examinations to which I referred failed to discover evidence of obsolete lesions in the intestinal canal or its glands. At post-mortem examinations on the human subject it is the usual thing, in fact, I may say it is quite usual, to get tuberculous nodules in the lung, but it is very rare in my experience to find old-standing lesions of the mediastinal glands.

328. Do your post-mortem examinations apply to adults or children?—Chiefly to adults.

329. So that it is highly probable those affected died before they got to adult age?—It is quite possible.

330. And it is quite possible that in the case of adults the tuberculous bacilli may pass through to the

lungs?—That is true, but I think there is a difference of opinion on it, but it is quite possible.

531. You are familiar, of course, with von Pirquet's method of testing. Have you done any yourself?—Yes; I have done a great many.

532. What is the result of von Pirquet's methods?—As applied to adults it yields a very large majority of reacting subjects.

533. More than 90 per cent.?—That was not so in my experience. The number that reacted did not amount to anything like 90 per cent.

534. You know that 90 per cent. has been given?—Yes.

535. Mr. WILSON.—Ninety per cent. of ordinary human beings?—I don't think that would hold in Ireland.

536. Prof. MERRAN.—In Metchnikoff's recent paper he states that in Paris 82 per cent. were shown under the age of 15, and in the case of Neugeb he found something like 98 per cent. These facts are well known. It is well known that Naegeli in Switzerland found that as you approach the age of forty, 90 per cent. of adults yielded evidence of tubercle?—I don't desire to question it in the least. The point to which I think some attention deserved to be directed is that such lesions were generally to be found in the lung.

537. It is quite possible that the obsolete lesions may have given the patient a certain amount of immunity?—It is the absence of obsolete lesions in the alimentary canal and the anus that I am drawing attention to.

538. In the Report of the Royal Commission on Tuberculosis they found that a considerable number of cases affecting man was of bovine origin?—Of a total of 108 cases of human tuberculosis investigated, 84 yielded human tubercle bacilli only; 19 yielded bovine tubercle bacilli.

539. So I may take it that 90 per cent. of the cases were all of bovine origin. Don't you think that is rather serious?—I think so. That is one of the reasons why I am here.

540. Don't you think that every provision should be made that fewer persons should take milk that is contaminated with bovine bacilli?—I think it is very desirable. I would not like to drink any such milk myself.

541. The CHAIRMAN.—I am glad that we have that expression of opinion from you, because it will go far to allay the feeling of alarm in the public mind, that although there might be bovine bacilli in the animals producing the milk, it is not necessarily as great a danger as being exposed to tubercle bacilli generated in the human system?—Quite so. The exact point we were discussing was as regards the precise infectivity of reacting cows which are not obviously affected. I think we must also take it as a fact that in the milk of such animals the bacilli occur in very small numbers.

542. Mr. WILSON.—Would you say excessively small?—I rather deprecate the use of terms like that. I think very small is the expression I should prefer to use. It is difficult to give a numerical expression to it.

543. Would you say relatively small in comparison with those that occur in a tuberculous udder?—Yes.

544. Sir JOHN LESTANGE.—Would you say that if this milk infected a guinea pig that it would be unfit for use?—Yes.

545. Prof. MERRAN.—The question of the infectivity of particular individuals is due to the idiosyncrasy of that particular individual?—Yes. Milk that might fail to infect one child might infect another. A child that had a hereditary pre-disposition to the disease would possibly be infected sooner than a child that was not so pre-disposed to the disease.

546. Consequently you will agree with the passage of the Report of the Commission on Tuberculosis:—"We are convinced that measures for securing the prevention of ingestion of human tubercle bacilli with milk would greatly reduce the number of cases of abdominal and cervical gland tuberculosis in children, and that such measures should include the exclusion from the food supply of milk of a recognisably tuberculous cow, irrespective of the site of the disease, whether in the udder or in the internal organs."?—I fully concur with every word of that, and the only reason I take up the somewhat milder position is that I had regard to what appears to me to be the practicability of the measures that you might recommend. I thought that if scientists like myself were to take up

too sweeping a position in the matter it might make it more difficult, in view of the large number of these reacting cows that are at present in Ireland, to frame a practical scheme.

547. Mr. WILSON.—I gather that the extract read by Professor Merran does not suggest the exclusion of all cows that react, and which are otherwise healthy. It does suggest the exclusion of all cows that are recognisably tuberculous?—I think Professor Merran will be able to explain his own position. My position is that it would be desirable that all such cows should be excluded from the milk supply. To exclude them at one fell swoop would be impracticable, but I think that the milk derived from herds in which none of the stock react should have a higher commercial value than that from herds some members of which reacted to the tuberculin test; and I would further endeavour to induce committees of local sanitary authorities, workhouses, and orphanages, and other large institutions, to give a preference to contractors who could supply a reliable veterinary certificate that their stock did not react. If I could compel them to do that I would do so.

548. Mr. CAMPBELL.—Notwithstanding the fact that at the Model Farm you did not find any tubercle in the milk?—But my methods were imperfect.

549. The CHAIRMAN.—That was done twenty years ago?—Ten years ago. Once you admit cows reacting to the tuberculin test to the dairy herd, you never know what progress the disease may make. I draw attention to that in the draft of my evidence. Tuberculosis is a steadily progressive disease, and if left to itself it kills a very large number of those it attacks. You never have any guarantee in the case of dairy cows that the tuberculosis is not increasing.

550. Mr. WILSON.—You spoke of it killing a large proportion of those whom it attacked?—I was speaking of cattle. The disease in cattle has a large percentage of attacks.

551. What is the scientific explanation of the large number of people attacked by tuberculosis who get better? Is it contained in the word immunity?—I don't like to apply the word "immunity." The disease is the outcome of a struggle between the defensive mechanisms of the body and the invading bacilli. In a great many cases, owing to the firmness on the part of the invading bacilli, only a small number being taken in, the greater strength of the defensive mechanisms of the body succeeds in building a wall around the bacilli, and then the disease makes no further advance; but it lies latent for a long time in some people, and if their constitution is impaired by other diseases it springs up.

552. Sir JOHN LESTANGE.—Would you consider it advisable or not to exclude all tuberculous cattle from the dairy which supply milk?—I would regard it as a matter of perfection, and we ought to strive to attain it.

It might be possible to give legislative effect to that as a safe way by allowing a period of time to elapse before such an Act would come into force, during which time everyone would be warned and get their cattle fattened off.

553. Mr. O'BRIEN.—Is it difficult to make this tuberculin test?—No; it is very simple.

554. Can it be done by any Veterinary Surgeon?—Yes.

555. Or medical practitioners?—It is the work of a Veterinary Surgeon.

556. Mr. CAMPBELL.—Sir John Lestange raised the question of giving notice. How could any dairyman in buying a cow be sure that it had not tuberculosis?—All respectable dairymen nowadays ought to buy their cows subject to the tuberculin test. If the dairymen adopt that practice, and undertake not to buy for stock purposes any cow that reacts to the tuberculin test, I believe in the course of a year or two they would be able to secure an abundant supply.

557. Is it at all likely that the dairymen will do that?—I believe that the dairymen are as up-to-date and as intelligent and honest as others, no more my loss, and it is shown to be to their advantage, and secured for them a greater amount of custom, and if they knew they were likely to be taken up by public institutions, I think they would have the test.

558. Sir JOHN LESTANGE.—How is he bought subject to the veterinary surgeon's certificate. Might not cows be bought also subject to the veterinary surgeon's certificate?—I do not see anything to prevent it.

500. Mr. CAMERON.—It would be necessary to have some compulsion, would it?—Well, I believe there are a great many things in which compulsion ought to be applied, and is not; but I think that the whole trend of modern legislation seems to be to try to get people to do things without compelling them. If you try to compel a man to do a thing, and he is unwilling to do it, you put him into prison and make a martyr of him, and get up an agitation in his favor.

501. You are aware that in Great Britain great attempts were made about twenty years ago to carry out this very thing?—I know that.

502. And it came to nothing?—I am sorry to hear it. Various systems tried to buy their cows on the tuberculin test, and to my certain knowledge they have led to give it up.—Why have they to give it up?

503. Because if you would not buy my cow without a test, another man would, and why should I bother with a test. We would buy our cows in the Dublin Market with a test, but others will buy without any test.

The CHAIRMAN.—Unless the test was universal it would be practically useless?—I really cannot go into what is practical, but I believe that if we really made it worth the dairyman's while to have no tuberculosis cows the leaders of the dairy industry would have no such cows, and their milk would have a higher commercial value.

504. Sir JOHN LESTRAICHE.—Do you not think that educating the public will give a higher incentive?—Yes; I look forward to the Commission doing that.

505. Do you know anything of what is done in this particular matter in Denmark?—I have not followed the development of the question of late years. You will get that from some other witness, but I am under the impression that they have gone further than we have in this question.

506. Mr. CAMERON.—From the tests you have made you imagine that perhaps 40 per cent. of our cows are tubercular?—I said it may perhaps have been from 30 to 40 per cent.

507. I do not think 40 per cent. is too high.—I am glad to hear that, because I was in doubt whether I had not gone too far.

508. The method which has been recommended by so many scientific men for the reduction of tuberculosis is, of course, to apply the tuberculin test to separate the stock?—Yes.

509. I want to read for you this sentence to show you what need there is for the improvement of public opinion in Ireland. This is a leaflet issued by the Department, collecting the people as to tuberculosis being infectious, and how its spread may be prevented. After stating the steps that should be taken to prevent the disease—the separation of the sound from the unsound, and the disinfection of infected premises—the leaflet states:—"The first step is to put not only the obviously unsound, but also those that are suspected, in quarters by themselves, that is, to isolate them. Unless they are of extraordinary value for breeding purposes, they should be fattened for the butcher as soon as possible." That had to be withdrawn in Ireland, because it was said that it was an incentive to people to sell tuberculous cattle, but are we not selling them every day of the week?—Yes.

510. You give it as your opinion that in the case of apparently healthy cows that react to the tuberculin test it would be legitimate for the owner to fatten them for the butcher?—Yes. There is not the slightest danger to the public eating the meat of such cows.

511. The CHAIRMAN.—Allusion was made yesterday to certain plenary powers existing in certain English cities, such as Liverpool and Manchester, for instance, which they obtained under private Acts; the power exists to investigate the sources from which their supply of milk was gathered?—Yes.

512. In your draft of evidence you say that in Manchester and Liverpool the milk sent into those cities by 408 farmers was tested, and that of those 408 farmers no less than 30, or 6.4 per cent., were found to be supplying tuberculous milk?—Yes; that is so. I found that in the Report of the Medical Officer of Health of Manchester for last year.

513. Have you any information as to what the Public Health Authorities did in these circumstances?—Yes; I think so. It sent its inspectors to the farmers, and got the cows examined, and in certain cases he applied the tuberculin test. In the case of one farmer they found that no less than 80 per cent. of his cattle reacted to the test.

514. What action was taken by the Public Health Authority to ensure that milk from this herd would not be allowed to be sent into the city? Was a general prohibition given not to send milk from that farm where the 80 per cent. of affected cows were discovered?—The prohibition was given, I take it, and as the case of the 80 per cent. the dairyman was prosecuted for failing to notify to the Medical Officer of Health the presence in his herd of a cow suffering from marked tuberculosis in the udder.

515. Do you suggest that the power which exists in Manchester and Liverpool should be conferred on the Public Health Authority in Dublin?—I do, most decidedly. I think that every power which is possessed by the Public Health Authority in Liverpool and Manchester ought to be conferred on, and moreover, to be exercised by, the Public Health Authority in Dublin.

516. In the first instance Parliament would have to be consulted and powers obtained, and then it would be for public opinion to insist that the powers that were given should be put into operation?—Have you been told that the Public Health Authorities of Dublin have no such power?

517. It was not perhaps directly stated, but in practice the belief prevails that it is extremely doubtful whether they have the power, and so gave me the doubt that the Public Health Authorities have hesitated to seek to establish it.

Sir JOHN LESTRAICHE.—In the papers yesterday it was stated that in answer to me, Mr. Smith, the witness from the Local Government Board, said there was such power. I am under the impression that under the Tuberculosis Prevention Act they have the power, if they exercise it.

The CHAIRMAN.—Some doubt exists, because the Dublin Corporation in their Omnibus Bill sought to have powers conferred on them similar to those conferred on the English cities we have been referring to, and this clearly indicated that the Law Officer of the Corporation was doubtful whether such powers existed?—I am under the impression that in the second part of the Tuberculosis Prevention Act they have the power, and what I complain of is that they have not exercised it.

518. Mr. O'BRIEN.—Is that the power to go into the country and examine the source of supply?—Yes. Where the Sanitary Authorities in the country have not carried out their duties the Public Health Authority in Dublin can send its Inspector to the cow byre in the country.

519. The CHAIRMAN.—This was one of the difficulties of the Dublin Corporation, as they were unable to determine at the moment whether in the districts from which the milk was supplied the Local Authorities had enforced the regulations imposed on them by registration?—That is quite a different matter. That is beginning at the wrong end. The first thing of all is to exercise the power which the Corporation most undoubtedly possess, of collecting samples of milk coming from outside into the city, and subjecting them to bacteriological examination, and to trace up the source of the milk supply, and ascertain where the tuberculous animals are that are causing the trouble, and forcing the farmer to slaughter them. I am under the impression that the Dublin Corporation have the power to do that, if they care to exercise it.

520. It was conveyed to us yesterday very distinctly that it was a question of doubt, and that the procedure to be adopted was so complicated that they hesitated to put it into operation?—I do not think it is a point upon which any doubt ought to exist. In a properly organized Health Department there ought to be no doubt as to their powers, and if those powers are known they ought to be acted upon.

521. You think the question ought to be brought to a direct legal issue?—I do not think we have got as far as a legal issue. If only someone would take the trouble to read the Acts on the subject he would know without any legal process at all, they bear their own construction on the face of them.

522. Prof. MURRAY.—We gathered that the only way by which they would get power was by informing the Local Government Board. They have to ask the Local Government Board?—I do not think they have. If you have a copy of the Tuberculosis Prevention Act, you will see that they have ample powers for the purpose.

523. Mr. WILSON.—For this precise purpose?—Yes, undoubtedly, independent of the Local Government Board.

524. Mr. O'BRIEN.—Sir Charles Cameron said that he

thought the Corporation had power, with the sanction of the Local Government Board, to go into the country. They asked in the Quarantine Bill for direct power to write to the Local Authority in the country, and say "There is tuberculous milk sent up, and we insist on you taking action about it."—There is no one writing to Local Authorities. The Officer of the complaining Authority is the man to carry out the inspection, and that is what is done in Liverpool and Manchester.

585. Prof. MERRIAM.—In the Report of the Veterinary Surgeon to the Corporation of Glasgow, 1907-8, it is stated that 21,000 cows supplied milk to Glasgow in 1908 from herds situated in the counties of Ayr, Renfrew, Dumbarton, Stirling, and Lanark, and an examination showed that one in 681 had a defective udder, and that one in 1,240 was tuberculous.—So far as my knowledge goes, the Dublin Corporation have the powers, and if they have not they ought definitely to know and ask for them. There was nothing whatever to prevent them assuming the same powers as exist in Liverpool and Manchester, and I say there is no excuse for such laziness in this important matter.

586. Prof. MERRIAM.—The Medical Officer's Report for Glasgow showed that in past centuries 40, or 2.4 per cent. were affected in the udder?—That is a very high percentage.

Mr. CAMPBELL.—It is one per cent. in Hamburg.

587. Mr. O'BRIEN.—In the last paragraph of your draft evidence you say, in reference to the Report of the Medical Officer of Liverpool, that the proportion of samples of milk found to be infected was always higher in the case of the country producer than in the case of the milk produced in the town. You say—"Of the latter the highest number ever found tubercular was 2 per cent., whereas of the country samples the percentage was four in 1910, and nine in 1906." Have you any explanation for that?—Yes; the reason is perfectly well known. The cows in the country are worse kept and under less strict supervision than in the town.

588. Is it not also a fact that in many towns when they notice that something is the matter with their cows they send them off to the country?—I have heard that of Manchester. They put them away from observation.

589. Is it not necessarily the badness of the byres, but when the animals become diseased they are put out into the country?—That is very possible.

590. Mr. CAMPBELL.—There is another reason. The dairymen in Dublin buy the pick of the cows. The worst cows are left in the country.

Mr. O'BRIEN.—And they buy older cows?—The town dairymen have some idea of how to do things.

591. This paragraph to which I have referred would lead one to suppose that the whole method of looking after the cows was nearly five times as bad in the country as in the town?—I don't think it is quite susceptible of that explanation. You will observe that I did not draw any inference from the figures, because I was not very clear myself what was the cause. Every one knows that milk coming in from the outside is not as high class a product as that produced in the towns under the strict supervision of the Public Health Authority.

592. Sir JOHN LANTASNE.—That is the more reason why it should be carefully inspected?—Yes.

593. Mr. WINSON.—In the previous pages of your evidence you say—"If we assume the incidence of udder infection to be one per cent. only, and if further we assume that only 20 per cent. of all the milch cows in Ireland are tubercular, we find that 2 per cent. out of all cows have tubercular disease in the udder, and are yielding dangerously infective milk. Estimating the total number of milch cows in Ireland at a million and a half, we arrive at a grand total of somewhere about 5,000 cows with tubercular disease of the udder, and dangerous to the public health, scattered up and down the country."—Yes.

594. From what I have seen in my own part of the country, I think your evidence that 3,000, more or less, are scattered throughout the country would be right?—Yes. The question of destroying these animals is, of course, a question of policy, but if you destroy these 3,000 you destroy the greater part of the infection, and so far you would be doing a great public service; but I think you ought ultimately to get rid of the others also.

595. Sir JOHN LANTASNE.—Would it not be an economy in the end to destroy these cows?—Yes.

596. Prof. MERRIAM.—What you would suggest would be the removal of all cases of open tuberculous?—Yes. The CHAIRMAN.—Thank you, Professor McWheeney, for your very interesting and important evidence.

Dr. JOHN O'DONOGHUE continued.

597. The CHAIRMAN.—You are Medical Officer of Health for County, and also Superintendent Medical Officer of Health for the entire North Dublin Rural District?—Yes.

598. Regarding the supervision of the dairies in the North Dublin District, is it not the practice that the Dairy Inspector or the Veterinary Inspector may notice certain things which they believe are not in conformity with the regulations laid down under the Milk Shops and Dairies Order, and then report them to the Medical Officer of Health for the district?—They don't always report to the Medical Officer of Health. They are not supposed to do so. They report to the District Council.

599. Prof. MERRIAM.—Directly?—Yes.

600. The CHAIRMAN.—And do you get directions from the Council?—The instructions come to me in a roundabout method.

601. You have a Dairy Inspector in the North Dublin District?—Yes, and a Veterinary Surgeon as well.

602. Will you point out the difference between the duties of these two officers?—The duties of the Veterinary Surgeon is to inspect the cows and the sanitary condition of the cow byre, and he reports to the Council as to the result of his inspection. The duty of the ordinary Dairy Inspector seems to be confined to looking up persons who are not registered, or to serve notices on people who do not comply with the regulations. The Dairy Inspectors have received no sanitary certificate.

603. They have no qualifications?—No.

604. So that they have not the smallest idea of what the hygienic condition of a dairy or a cowshed should be?—No.

605. Has attention ever been paid by these Inspectors to the clothes or general condition of the people handling the milk?—Practically none.

606. And his duties are restricted to the general inspection of the premises or byres, the keeping of swine in proximity to dairies, and the distance of the manure pit from the cow byre?—Yes.

607. Does he go to the houses of the people or the milk shops?—They have practically no dairies in the rural part. There might be one or two in Howth; in other places I do not know of any. They milk and put the milk into churns, and it is brought into the city. They do not sell it as a rule in the country.

608. The milk is not followed by the Officer of your district to the place where it is exposed for sale in the city?—No.

609. And no supervision exists so far as your Council is concerned over the condition in which the milk is kept while it is being disposed of?—No. The supervision so far as your Council is concerned is very lax.

610. Is their attention called to the condition of the vessel in which the milk is placed?—I should say that there is hardly ever. I have never seen a report that the milk vessels or cans were not perfect. They generally report that everything is all right.

611. It is a very satisfactory way to report, but whether the circumstances justify the report is another question?—I think we have 70 cow-sheds, and about 20 of these are absolutely unsuitable for the keeping of dairy cattle.

612. The construction is such that it is impossible to keep cattle in a healthy condition in them?—Yes. I should also say that we have not one single first-class cowshed in the whole area.

622. Is there an Institution called the Albert Institution?—Yes. I am sorry to say I cannot class it as first-class; it is called the Medical Institute.

623. Model, but not first-class?—Yes.

624. You have about 70 dairies?—Yes; and I should say 20 of them are not fit for the keeping of dairy cows, and the great majority of them are defective for the ordinary reasons—no ventilation, light, &c. The principal difficulty is that the byres are all badly constructed. They make them too long, so that they get filthy, and the cow lies down in the dirt.

625. Prof. MERRIM.—How many cows would there be?—About 1,500. Of course, the number varies from time to time.

626. Mr. O'BRIEN.—You mean that the cow has room to get back and be down in the droppings?—Yes.

627. That it is too long that way?—Yes. The cow is made to fit the byre, and not the byre constructed for the cow.

628. Sir JOHN LIVERMORE.—Are you in your district?—Yes.

629. You have seen the byres there?—They are not under my control.

630. The CHAIRMAN.—You had an unfortunate epidemic of fever in your district a year or two ago?—We had three. One, of scarletina, in Glasnevin, caused by milk; one in Clontarf, of typhoid; and another of typhoid fever, in Howth, directly traceable to milk.

631. In all three outbreaks?—Yes.

632. These are all recent occurrences?—The Glasnevin one was about two or three years ago. There were practically fourteen fatal cases of scarletina, and it was found that they were scattered all over Glasnevin, and the patients were all supplied by the one dairyman. His children had been suffering from sore throats, and his cows were out in the country. I inspected the place in the country, and I found that the man milking the cows had a peculiar kind of sore throat, and I induced him to go to the hospital. A certain amount of milk was confiscated, and the place was disinfected.

633. Was it ascertained that the people affected were supplied from the one dairy?—Yes. That was the first serious case.

634. The reason I ask the question is that I am anxious to know what is the mind of the Medical Officer inspired with the notion that the disease arises from a common cause, and when does he take action to ascertain what the cause is?—That all depends on the notification. If the Medical Officer of Health gets four or five notifications of scarletina in one district he goes and inquires, and finds whether the milk supply is the cause.

635. Does the Medical Officer in the district institute inquiries for his own information?—Yes.

636. And he reports to you as Medical Superintendent of Health?—I get all the notifications of disease in the North District.

637. And these induce you to undertake investigations to trace the source of the disease?—Yes.

638. What period elapses between the notification of the first half-dozen cases and the determination of the source of infection?—These scarletina cases were rather an explosive outbreak—three and four to-day and five to-morrow, so that three days elapsed—so far as my recollection goes, before we got on the track of the milk. In the Clontarf outbreak we were very unfortunate. There were 148 cases of typhoid, and 130 of them had received the milk from a particular dairy. There were 82 houses attacked, and 79 were supplied with milk from a particular dairy.

639. There were only three houses out of 82 with immunity from typhoid fever?—No. There were 82 houses attacked; 79 of these were supplied with the milk from a particular dairy. The other three houses were only partially supplied by that dairy. In that epidemic, so far as the milk supply was concerned, no steps were taken to prevent the milk being distributed owing to a peculiar flaw in the Act.

640. I am coming up to that. We had evidence yesterday from Sir Charles Cameron on the point?—We proved that in every instance the milk supplied came from this particular dairy. It was held that we could not close it because we could not establish the fact that there was disease amongst the dairyman's family or his employees, though I had a suspicion that one of the men was suffering from mild typhoid. He was a milkman.

641. Miss McNEILL.—Was any test applied?—The Widal test was applied in several cases, but the result of the Widal test was never known, except that the milkmen were charged on to other work.

642. The CHAIRMAN.—Was that done rather at the instance of the owner of the dairy than of the Public Health Authorities?—Purely at the instance of the owner of the dairy.

643. Is it a fact that the Public Health Authorities had not the power to have the Widal test applied for their own information?—I do not think they had.

644. Do you think it desirable that the Public Health Authorities should have that power?—I do.

645. As a precautionary measure, at least. After these tests had been employed, the owner of this dairy thought it wise to change them to other occupations?—Yes. He changed his milkmen and his dairy people.

646. Sir JOHN LIVERMORE.—Did he change them all?—Yes. At the time this test was applied public opinion was acting on the dairymen, because people were refusing to take his milk.

647. The CHAIRMAN.—That was an instance in which public opinion had a stimulating effect towards reform?—Yes.

648. At all events, it was considered unsatisfactory by the Public Health Authorities that they had not power to prevent the sale of milk from this particular dairy under the very suspicious circumstances which then existed?—Yes.

649. Although the suspicion almost amounted to a certainty, they were advised that they had got the power to prevent the sale of the milk?—Yes. Exactly the same thing occurred in the Howth epidemic. There were about fifteen or sixteen cases, so far as I can remember. They were scattered all over Howth. A lot of them were campers-out there in the summer, and it was found that they had all the same milk supply. The milk was supposed to be sterilised milk. The epidemic was accounted for in this way—a man whose family had typhoid in Clontarf took a house on the Hill of Howth, and developed typhoid himself. The dejects from this patient was thrown into a sort of sub-pit. There was a sort of drain from this sub-pit running into a stream which ran by the premises of a dairyman who washed his cans in the stream. That was what spread the epidemic in that case. In that particular case we could not stop the selling of the milk.

650. That is exactly the case that was referred to by Sir Charles Cameron yesterday, where he thought it was extremely desirable that the Public Health Authorities should have the same power over suspected cases as over cases in which they had positive proof?—Yes.

651. Do you subscribe to that?—Certainly.

652. And do you think it extremely desirable that such power should be conferred on the Sanitary Authority?—I do.

653. Mr. WILSON.—I was wondering whether Dr. O'Donnell would give us any idea whether the people in whose hands the power would be placed would use it. They do not seem to use the powers they have got?—The majority of the people who have to put these Dairy Regulations in Ireland into operation are cow-keepers themselves.

654. Arising out of that, would you see any serious difficulty in the Municipalities getting power to control the milk from the source of origin?—I think they should have that power. My idea is that the only way to deal with some of the dairies is to license them like the public-houses. It has acted very well in the case of alcohol, why not in the case of milk.

655. Mr. CAMERON.—You would put the cow-keepers directly under the Sanitary Authorities in the city?—No; I would license them only. The people who would have the authority to license would, in my opinion, be the Department of Agriculture, or, if you will, the County Council. The point about the license is that you can go and oppose the man's license if he does not keep his dairy in a proper condition.

656. Prof. MERRIM.—It would also ensure that he should have fit and proper quarters for his cows when he applied for his license?—He should have his premises in fit and proper condition before he gets his license.

657. The CHAIRMAN.—Do you know if the licensing system prevails in Manchester and those other cities that have special powers under their own local Acts?—I do not think so. In America, I think, they have.

658. Miss McNEILL.—The following appears in the

report of a Milk Commission of Philadelphia:—"No dairy farm, creamery, dairy product shop, milk dealer, pasteurising plant, milk shop, restaurant, dining-room, eating saloon, hotel, bar, drug store, ice cream saloon, or ice cream manufactory, or by any other means engaged in the business of selling milk or milk products, shall be permitted to sell or offer for sale milk, cream, buttermilk, ripened milk, kassian, kaffy, evaporated condensed milk, sweetened condensed milk, skummed milk, ice cream, or any other milk or cream product, without a license; and before such license is issued a sanitary inspection of the premises shall be made, and a detailed record of the same, together with a description of the business of the applicant, shall be filed in the division of milk inspection. Each license issued for the sale of milk, cream or milk products, must distinctly specify the class or classes of milk to be sold under such license, and no vendor of milk shall be permitted to sell or offer for sale any other class of milk than that covered by his license. No license or permit shall ever be re-issued to applicants whose previous record shows that such applicant's premises or shop have been reported as unsatisfactory by an inspector on three different occasions within a period of twelve months, or when such applicant has been reported on two different occasions for the sale of adulterated milk or cream."

Dr. O'DONOGHUE.—They also give what they call certificates. They examine the dairy with regard to its hygienic condition and the milk with regard to its purity, and if they find it comes up to a certain standard they give the dairyman a certificate which he prints on his car. There was a firm in Dublin who had an advertisement that they sold milk free from disease.

Mrs. McNEILL.—They classify milk in America.

669. Prof. MERRILL.—Do you think it would be a good plan to be able to go outside your area, and go down to the sources of contamination?—Yes. My impression is that the Medical Officer obtains an order and goes down to the country and examines the dairies. That is my impression of the Act.

670. Lady EVERARD.—You mean to say that you can go down to the source of infection and inspect?—Yes. I think under the Tuberculous Prevention Act they have power, provided they have an order from the magistrate.

671. Mr. O'BRIEN.—You never did so?—No.

672. Has anyone ever done it?—No.

673. Do you come into the Dublin district at all?—No.

674. You have nothing to do with tins or milk coming up from the country?—No.

675. I suppose there is somebody who has power to go to the stations, and see in what conditions the cans are sent up?—Yes. The Public Health Department of the city have power to take samples.

676. I have received a letter stating: "I should like to draw your attention to the filthy state of the milk coming in Dublin." The writer states that one or two of the cans containing milk in the trains were covered with an old machintosh, and that there was a regular crust of filth on top of the milk.—My impression is that the greatest amount of contamination comes from the milkers. Practically all the milkmen I know are dirty in the rural area.

677. Clothes and persons?—Yes, and habits, and they infect the milk.

678. The CHAIRMAN.—And there is no provision made for the washing of their hands?—Practically none in the dairies I know. There are a few in which provision is made.

679. Mr. O'BRIEN.—Have the Inspectors under you any definite rules and regulations as to what they shall go and inspect? Have they any standard as to what the dairy should be?—They have.

680. So that they all go round and ask the same questions and look for the same things?—They have very definite rules and regulations, but the system at the present is that if you try and get the regulations enforced, the way to do so is to have it enforced by the district Commissioners, about three-fourths of whom are dairymen. Our rules are right enough, but we cannot enforce them.

681. The CHAIRMAN.—That is a question of administration?—Yes.

682. Sir JOHN LESTER.—Are you engaged in practice, doctor?—Yes.

683. And you see a great many children of the poor?—Yes.

684. Do you think they get a sufficient quantity of milk?—Hardly.

685. They are not properly supplied?—No. They get a good deal of diluted milk.

686. Is this in consequence of the bad milk or the poverty of the people?—I think a lot of it is due to the poverty of the people.

687. The CHAIRMAN.—Has any case of difficulty in securing a supply come under your notice?—Yes; particularly in Howth. The supply is very scarce down there.

688. Mr. O'BRIEN.—I suppose Howth would be supplied on Dublin as it is?—Yes; by sterilised milk, but also by local dairymen.

689. The CHAIRMAN.—The quantity of milk locally provided is insufficient to supply local needs?—Yes.

690. Dr. MOONMAN.—Do they use anything to supplement the supply?—Yes; condensed milk.

691. Is it used in your district?—Yes; in Clontarf.

692. Have you ever traced any disease to it?—No.

693. What do you think of it as a diet?—It is very bad, because it is separated milk to which sugar is added.

694. Mr. O'BRIEN.—Is it labelled as separated milk?—That has only been done recently.

695. I was wondering whether it was generally done?—I never saw the label on it.

696. Dr. MOONMAN.—Is there any goat's milk in the place?—Very little.

697. The CHAIRMAN.—What does your Veterinary Inspector do with regard to the inspection of dairies?—He inspects the cattle.

698. How often?—Frequently. He is supposed to report on that quarterly. He is constantly inspecting them.

699. From your personal knowledge do you know that he has directed the attention of the local Sanitary Authority to the condition of any single cow in this district since he has been appointed?—He has.

700. What action was taken by the Local Authority?—They frequently removed cows with tubercular udders. They are disapposing.

701. Are they slaughtered?—I think they slaughtered some of them. The principal way in which they got rid of them was by selling them.

702. They pass them from one part of the district to another?—They get out of the Inspector's backfence. He is constantly reporting that places are unfit for cows, and that manure heaps are close to the dairies, and no action is taken. The regulations don't stipulate any distances for the manure heaps. With regard to pigs, the regulation is that the owner is not to keep pigs in the same bye, but he keeps them next door, and also foul next door.

703. Lady EVERARD.—If a Veterinary Inspector finds cattle suffering from tuberculosis of the udder what does he do?—He reports to the Sanitary Authority.

704. What is done?—They are supposed to be slaughtered. But the owner sometimes sells them immediately after the inspection.

705. It seems to me that when a cow is found to be suffering from tuberculosis of the udder it should not be disposed of until the Veterinary Inspector sees what is done?—No.

706. Mr. O'BRIEN.—You have no power to prevent them disposing of them?—No.

707. You cannot seize them?—No; I don't think we can.

708. Mr. WILSON.—The man who carries on the inspection is not a qualified Veterinary Surgeon?—Yes, he is.

709. The CHAIRMAN.—They have got a Dairy Inspector as well as a Veterinary Inspector.

Mr. WILSON.—The first man who sees this cow with a bad udder is the non-professional man.

The CHAIRMAN.—Does the Dairy Inspector make a report to your Veterinary Surgeon about a cow that he thinks is suspicious?—I don't think so. I think he simply writes a report to the Council. His report is generally "everything right."

710. Mr. O'BRIEN.—How many Inspectors have you?—One Dairy Inspector and one Veterinary Surgeon.

711. How many animals are there?—1,000 cows.

712. Distributed among how many dairies?—About 70, but they see over a big area.

713. Do you think that your two Inspectors can get about these 70 dairies once a year?—I think so.

665. And see the cows?—Oh, yes.

664. The CHAIRMAN.—It is possible that they could do so. As a rule, they are paid extremely small salaries?—Yes.

Little more than nominal salaries, which means little more than nominal inspection.

665. Mr. O'BRIEN.—You want centralised authority?—Yes.

666. Prof. METTAM.—And more independence?—Yes.

667. Mr. CAMPBELL.—Is it the case that in your union or district the members of the Council are mostly dairymen?—Yes.

668. Lady EVERARD.—If your Veterinary Inspector finds a cow with a tubercular udder he reports, but he or the Local Authority does not follow it up, and the dairyman can dispose of the cow?—Yes.

669. Prof. METTAM.—As soon as the Veterinary Surgeon finds a tubercular cow he should be able to place an embargo on it. When a Veterinary Surgeon discovers a cow suffering from disease of the udder he should, in the first instance, notify the Medical Officer of Health, with a view to preventing the sale of the milk from that cow.

700. Prof. METTAM.—That should be a matter of routine in administration. You would think that was a natural consequence?—That is not the practice.

701. The CHAIRMAN.—The salaries paid are so small that the officers can only devote a medium of their time to the work. The salaries offered would not be an inducement to a man to make a constant inspection of the dairies. They only give £20, £30, or £40 a year. This is an appointment in addition to an inspector's other engagements?—If you do not make a regulation that the report should be made it will not be made.

702. Lady EVERARD.—The Veterinary Surgeon reports to the local authority?—Yes. There is a definite regulation about it.

703. Miss McNEILL.—If it were one of the obligations of the officer's appointment that he should make such a report to you it would remove any personal element?—Yes.

704. Lady EVERARD.—Who do you suggest would be the best person to report to—the Medical Officer of Health or the Council?—The Medical Officer of Health.

705. The Officer ignores you?—I would not say that. There is no regulation compelling him to report to me at all.

706. Mr. O'BRIEN.—Is not the Medical Officer of Health elected by the District Council?—Yes.

707. And the District Council consists of the dairymen and stock-owners?—Yes.

708. And he is generally related to half of them. It is so in my district. And you may get some rivalry between two factions?—A great deal of contention arises from this fact, that every Dispensary Doctor is Medical Officer of Health for his particular district. In the North and South Dublin District they have appointed a Superintendent Medical Officer of Health, to whom the dairy business is transferred, but in the country if a Veterinary Surgeon had to report to the local Medical Officer of Health he would have to report to six or seven of them.

709. Prof. METTAM.—We understand that in the country the Veterinary Surgeon reports directly to his Council, because, probably, in his district there might be half a dozen Medical Officers?—Yes.

710. Miss McNEILL.—Could not that case be met quite simply if the report were at a matter of office routine sent to the various Medical Officers?

Prof. METTAM.—It has been said that the salaries are so small that the Inspector could not be asked to act as a clerk.

Miss McNEILL.—The doctors could be notified through the clerk of the Central Authority?—The suggestion of the Vice-regal Commission was that there should be a Medical Officer of Health whose whole time would be occupied in the work.

711. Mr. CAMPBELL.—To whom would he report?—It would be to a central authority.

712. The CHAIRMAN.—He would be endowed with primary power to order prosecutions. But under whom would he act?—Under the County Council.

713. Prof. METTAM.—That is the system in Great Britain.

Sir JOHN LESTANGE.—And is it not efficient?

Prof. METTAM.—Yes.

The CHAIRMAN.—You want in Ireland some authority free from local influences and capable of being moved only by the interests of public health. Apparently that would seem to be an absolute necessity if effect is to be given to the recommendations made.

Mr. O'BRIEN.—And that would be your opinion, Dr. O'Donoghue?—Yes.

714. The CHAIRMAN.—In order to secure really efficient administration with regard to the Order in existence and those that might be issued, your opinion is that some centralised authority should have the jurisdiction of getting these Orders into operation?—Yes. And that the various Orders at present existing should be consolidated, because they seem to overlap. If you want to prevent a man selling milk because his children have scabies, you have to go under one Act, and under another if you are dealing with a question of sanitation.

The Commission then adjourned until the following morning.

FOURTH DAY.—FRIDAY, 1st DECEMBER, 1911.

The Commissioners met at No. 5, Upper Castle Yard, Dublin.

Present—P. J. O'NEILL, Esq. (Chairman); Lady EVERARD; Sir JOHN LESTANGE, F.R.C.S.; ALBO WILSON, Esq.; J. R. CAMPBELL, Esq., B.Sc.; Professor A. E. METTAM, B.Sc., M.R.C.V.S.; DERMOT O'BRIEN, Esq.; GEORGE A. MOONHEAD, Esq., F.R.C.S.; Miss MARGARET McNEILL.

S. W. STRANGE, Esq., Secretary.

715. The CHAIRMAN.—Dr. O'Donoghue, who was examined yesterday, has sent a telephone message to the Secretary that there is one point he omitted in his evidence which he would like to have on the notes. The Secretary will give us the message.

The Secretary.—Dr. O'Donoghue telephoned that he wished to have said yesterday that during the summer season cows are sent from Dublin into the country around Dublin, and while they are there, there is no supervision over them. He said that he did not know whether it is the duty of the local inspector to inspect these cows, but as a matter of fact there is no inspection.

The CHAIRMAN.—I am quite aware of the fact that cows from the city of Dublin go out to graze in the North Dublin district in the summer months, and those in charge of the cows have a sort of "cubane" where arrangements for cleanliness and docking are not even of a primitive character, because they do not exist; and Dr. O'Donoghue rightly draws attention to the fact that when the cows are sent out to the country in this way they are apparently nobody's children and nobody looks after them, or the conditions under which the milk is produced.

716. The CHAIRMAN.—You are Inspector of Diseases in the Rathdown Union?—Yes.

717. And you also lecture on Hygiene in the University of Dublin?—Yes. I also have been engaged in giving lectures on Veterinary Hygiene by the Department of Agriculture throughout the entire of Ireland.

718. And you, naturally, travelling over the entire country as you have done, become conversant with the districts in which the milk supply was deficient?—Yes.

719. And on making inquiries you have ascertained, at all events so far as you could gather from casual conversations with people resident in these districts, the causes which have led to this condition. Will you kindly give us your opinion?—The deficiency in milk is confined to certain districts, and is by no means universal. Since I had an invitation to attend here I visited a creamery, and I have here particulars for 1910 and 1911 of the milk that was obtained at that creamery.

720. Mr. O'BRIEN.—In gallons?—Yes.

721. Have you got the number of cows?—No, you could not get that. In May, 1910, there were 25,400 gals.; in May, 1911, 33,611 gals.; in June, 1910, 33,908 gals.; in June, 1911, 63,146 gals.; in July, 1910, 43,844 gals.; in July, 1911, 55,067 gals.; in August, 1910, 41,542 gals.; in August, 1911, 46,467 gals.; in September, 1910, 34,041 gals.; in September, 1911, 42,989 gals.; in October, 1910, 37,394 gals.; in October, 1911, 35,036 gals. Total for 1910, 216,924 gals.; total for 1911, 253,276 gals., which gives an increase in six months of 46,352 gals.

722. The CHAIRMAN.—That is a very substantial increase indeed?—I look upon that as being due to the excellent management of the creamery for one thing, and also to the best methods being employed by the farmers in that district.

723. Prof. MARRAS.—Will you tell us approximately the district?—It is in County Tyrone.

724. Sir JOHN LAMBERT.—Is all the milk of the district going to the creamery, not to the children?—I think that a mean mother would possibly rob her children whether there was a creamery or not, but it seems to me that you might as well blame the proprietor of a bacon factory because people no longer cure their own pork, which they sell at 4d. a lb., and buy foreign bacon at 7d. a lb. You cannot blame the bacon factory for that. I know a case of a woman in Kingsdown who made a large fortune and buried twelve of her thirteen children. Her husband asked her for an egg, and she said she could sell it for 1d.

725. The CHAIRMAN.—Sir John Lonsdale asked the question whether the fact of this creamery industry being supported with so much diligence in the district is the means of curtailing the household supply of milk. I suppose it would be possible to ascertain that only by visiting the homes of the people?—I have done that, and in a great many places people never give their children milk or porridge or wholesome food, but that is really due to their ignorance. They consume sheep bread and tea which is always stewing.

726. Mr. CAMERON.—What is the price of the milk?—4d. a gallon in summer and 6d. a gallon in winter. I am only giving you the returns of the central branch, in which 200,000 was the turn-over in the last year, and working expenses were five per cent. on the turn-over for sinking fund, interest, and for other expenses of all sorts.

727. Would the creamery sell milk to people who come to them for 3d. a gallon?—I do not know. My point is, that where you have good management, and where farmers do their business well, and that the creamery does its business well, you can have an increase of the milk supply of the district. When I speak of deficiency or increase I speak of the general community. The creamery I speak of is under co-operative management.

728. Prof. MERRIAM.—How does that price compare with averages in other parts of the country?—About an average.

Mr. O'BRIEN.—4d. a gallon throughout Ireland, or 4½d. would be about the average.

729. The CHAIRMAN.—Does this creamery work for the entire year?—Yes. They do not separate milk on Sundays in the North of Ireland.

730. Miss McNEILL.—Is there a likelihood that the increase you have noted means, not so much an increase in the production, as in the quantity produced and kept from the houses?—Personally I do not think so. It is quite possible, but it is not my experience.

731. Dr. MOOREHEAD.—Have you any idea of the area of the district that the creamery draws its supply from?—About three miles.

732. The CHAIRMAN.—That is in a district in which you believe no shortage exists?—No, because the management is so good.

733. Does it not seem rather a pity that such an essential food as milk undoubtedly is for children, and growing boys and girls, is withheld from them, when it is sold at such a moderate price?—I think it is absolutely indispensable to supply a child with milk.

734. Mr. CAMERON.—Your evidence is that you do not know whether it is withheld or not?—Yes.

735. Lady KENNEDY.—Do they sell milk?—I do not know.

736. The CHAIRMAN.—Have you had any opportunity of inspecting the milk stock in that particular district?—I have.

737. And you also had an opportunity of seeing under what conditions they are kept?—I had.

738. Speaking generally, do you think that these conditions are satisfactory or otherwise?—I think, compared with other parts of Ireland, they are good. I have never yet been in any place that was not capable of some improvement, but the breed of cattle up there on the whole is good also, because you find a great many prize-winners from that district. There is a fine district leading on to Cookstown.

739. Do you think that due attention is paid to the artificial feeding of these cattle at seasons when the pastures are not luxuriant?—The people are very good, and they do more winter feeding than in other districts.

740. They carry on a mixed system of farming?—Yes.

741. In a district of that kind it is always possible to carry on winter dairying?—Yes.

742. You believe a certain amount of tillage is essential for the prosecution of winter dairying?—Yes, and above all things to the health of the animals. You cannot have winter dairying without labour. The tillage provides man with work and also winter feeding for cattle, and it also banishes disease from the stock. Just for three months, some years ago, in that very district, the amount that was received went down enormously through one disease, and all three diseases can be traced to want of labour and neglect of the land.

743. Did your observation in that district enable you to determine whether those engaged in the milk industry, in drawing the milk from the cows and in the transmission of the milk to the dairies, were cleanly in their habits?—On the whole, yes. They are rather a superior class of people in point of cleanliness and matters of that kind. For instance, every man who attends my lecture wears a collar and tie.

744. We are not much concerned with their holiday attire before a lecturer, but as their path when drawing milk from the cows?—They deserve credit for their appearance. On the whole, the district is satisfactory. Even there, of course, there might be improvements.

745. Your travels throughout the country are not limited to that particular district?—No.

746. You have travelled throughout other parts of Ireland?—Yes. I wish to withhold the name of the county in the case I am going to mention.

747. Dr. MOOREHEAD.—The industry of these particular people struck you as being conspicuous in the district in Co. Tyrone?—Yes. In one of the most fertile counties in Ireland, chiefly devoted to pasturage, the people depend upon the land to provide them with milk. During the summer they have their cows very often milked by female labour imported for the purpose, and during the winter months practically nothing is done. The animals are kept in a disastrous manner during the winter. The conditions under which the cows are kept baffle description. You have a cowshed containing forty cows, a bad floor, mud walls, a thatched roof, cows tall by tail, drainage down the centre, inclined to be in puddles; ventilation through slits in the wall, which open into a lean-to shed of corrugated iron in which pigs are kept; the drainage of the pigs and cattle emptying into a stagnant pool within ten yards of the dairy. I do not say that this is typical of Ireland, but I mention it to show that where people are industrious and the methods are good you will have a satisfactory milk supply from the hygienic, as well as from the commercial, point of view. What brought me to that man's place was because his losses were becoming so serious among his cows and calves.

The CHAIRMAN.—That was not difficult to understand,

748. Mr. O'BRIEN.—Has not your observation been that the richer the land the lazier the people and the worse the farming?—Yes.

749. Dr. MCCORMACK.—Industry was not conspicuous in that last place you mentioned?—No.

750. Miss McNEILL.—Can you tell us anything of the attitude of the Local Authorities in a case of that kind?—In that particular district I cannot say. In my own district the Local Authorities are falling into line very well. If you take the two rural districts of the Rathdown Union, any suggestions I have made to them for the last fifteen years have always been carried out. I have inspected for them for fifteen years, and they allowed me to draw up the rules and gave me any amendments I asked for, and gave me support in carrying out the rules.

751. The CHAIRMAN.—You are familiar with the Diseases and Milk Shops Order?—Yes.

752. Is it your opinion that if that Order was enforced in the district in which you found a dairy herd housed as you have described, it would be impossible for them to be in that condition?—I will not say off-hand in regard to that Order, but such a state of things should be impossible.

753. If the Local Authority were discharging their duties, would it not be impossible for those cows to remain in that condition for any length of time, provided an Inspector was appointed to look after the dairy cattle of the district? Is it not obvious that the conditions you describe would come under the provisions of the Order?—If I were an Inspector I would close the dairy.

754. Was that a dairy that supplied a creamery?—I cannot answer that question.

755. It was in a district in which creameries existed?—There are many creameries throughout the whole of the county I speak of.

756. Dr. MCCORMACK.—There is no winter production at that place?—No.

757. The cattle are looked up in the winter?—No. In the winter they have a system of turning them loose into little paddocks. They may in the springtime, just before calving, be brought in.

758. The CHAIRMAN.—Is it not reasonable to assume that any in-calf cows being kept in that condition could not produce healthy offspring?—I quite agree.

759. And don't you believe that many of the males by which cattle have been lost wholesale are in a large way due to the conditions in which they are housed during the winter time, and the way calves are kept after they are born?—Undoubtedly.

760. Another habit I have seen in some districts is that they turn the cattle into some mud-baths on the coldest winter day, and they stand up to their knees and heads in filth, with sleet blowing over them, and the animals are chilled to the bone. Would not such treatment as this have an injurious effect on the animals and impair their vitality?—Yes.

761. And must operate against the offspring?—Yes.

762. Mr. O'BRIEN.—Is not standing outside doors healthier than being in the houses you describe?—Yes, from one point of view.

763. The CHAIRMAN.—Are there not complaints arising in several districts of loss of cattle caused by abortion?—Yes, in several districts I was in.

764. Would not the conditions to which you have referred have an injurious effect from that point of view?—Yes, taking for granted that you have the infection.

765. We may take it from your observation, which is widespread and general, that there is need for very great improvement of the conditions under which dairy cows are kept?—Yes.

766. And that many of the losses from which the owners of such stock unfortunately suffer periodically are indirectly, or not directly, inseparable from want of care and intelligent management?—I would not say the want of care, because a man would not like to sacrifice his property. It is ignorance.

767. Lady EVERARD.—Do you find that the farmers are not quite aware of the extremely infectious disease abortion?—They do now.

768. Mr. O'BRIEN.—Do you not think that where the farmer knows about it and takes precautions, his herds are very ignorant and generally very lazy, and that unless a farmer is able to go round his stock himself almost daily, the cattle have been neglected?—You need not go down to the country farmers; you would find that in the county of Dublin three miles from where we are. A valuable herd I know was practically

broken up by contagious abortion through the neglect of the man, and a little neglect is a very serious thing in this disease. You may imagine you have it conquered, and it may be re-introduced.

769. In districts in which the creameries are numerous there is no chance of the milk being infected unless there is want of care on the part of the people dealing with the milk before it is sent in?—No, the contamination is between the drawing from the cow and handing it into the creamery.

770. As a rule, the milk is hardly brought into any other house except the creamery?—No. There might be an improvement in some cases in the care of the vessels. I believe the Department of Agriculture does some inspection, and I believe they have a system of calling persons' attention unpleasantly to the fact that their cows are not clean, but in some proprietary creameries in the county that I have already referred to without naming it, the manager happened to be an old school-fellow of mine, and brought me to see some of his branches. There I found tops of all kinds floating on the milk—a little bit of hay and other things, and there was a good sediment at the bottom too. I have never seen the cans cleaned, but I hope they are. In the County Roscommon they have rather an amusing way of bringing their produce to the creameries. They have small holdings, and the milk supply is small. They have painters, on one side of which is the churn of milk, and on the other side stones or an old man to balance.

771. That is not necessarily unhygienic?—No.

772. The CHAIRMAN.—Must it not mean an enormous loss to the country if the calves are sacrificed for want of intelligent management?—It is enormous.

773. And does it not also handicap the dairy industry considerably?—Enormously. There is one village I remember going into, and I was told by one of the clergymen that a man in that village made his living part of the year by skinning the calves that died from white scour. The skins were carried out in cartloads. I am inclined to believe that the loss among farmers is now less than it was. The county of Limerick and part of Clare and part of Cork and Tipperary are the white scour area.

774. Mr. O'BRIEN.—Talking about the keeping of milk, in all that southern district where there is a very large number of creameries, proprietary and co-operative, most of those creameries, at least the larger ones, work only a few days in the week during the winter months?—Yes.

775. Have you found whether there was any provision made for the keeping of the milk when separating was not going on, and in what condition it is kept in the dairies or houses until the creameries are separating?—I can only speak of one creamery where they take it in, and they have splendid provision for storage. That is the only one I ever inquired about.

776. Going through the farms as you have, generally, have you ever been struck by the fact that there is no sort of proper provision for the keeping of the milk?—Some three years ago I saw milk being stored in crocks under a bed.

777. No cover on them?—There was a cloth.

778. A dirty cloth probably. Would you say that a fair number of the farmers have some such provision?—They are improving in that respect, and a good percentage have, but I would not say the majority.

779. Mr. CAMPBELL.—Why did the farmer you refer to keep his milk under the bed?—It was the wife.

780. Was there any creamery to send it to?—There was no creamery in that district.

781. Have the creameries throughout the country the effect of improving the conditions under which milk is kept before the manufacture?—I should distinctly think they do have that effect. You have better methods.

782. What you have described has come where the creameries are?—Yes.

783. Mr. WILSON.—We had evidence that the return of the separated milk from the creameries has been the cause of the dissemination of disease.—I do not believe it.

784. What would your opinion be as to the return of the separated milk?—I think the only disease that would result from it is that if the people have to depend on it as feeding stuff, the only disease, if you can call it such, is scurvyism. Separated milk is an insufficient food for a young calf.

785. The CHAIRMAN.—The question was raised that it was the means by which disease might be communicated to the human subject.

Prof. MAISON.—There was an outbreak of diphtheria and it was traced to the separated milk that was distributed from the dairy. Mr. Wilson wants to know if you have come across anything of that kind?—No. Diphtheria, of course, came not from the animals but from the human beings. My opinion is that, if the creamery is well managed, and the milk taken in in a clean condition and in clean vessels, no disease will result from it, except that, being an insufficient food, the separated milk might predispose to disease if depended on altogether.

796. You do not look on the particular animal diseases that you have mentioned in your summary of evidence, viz., contagious abortion in cattle, mammary diseases, tuberculosis, white scour in calves with pneumonia, joint evil, calf diphtheria, red water, blackleg, heave, etc., as due to the creamery system and the return of the separated milk?—No.

797. The CHAIRMAN.—Do you think that due diligence is exercised in the management of these creameries to ensure cleanliness in the milk supply and in all the operations it is subject to?—There are good and bad. I think that one of the most necessary things with regard to such institutions is efficient inspection.

798. That leads to another question. Do you regard the inspection as at present carried out as efficient; is it as good as it should be?—I have not had sufficient opportunities of judging. I have met inspectors on the road and know they work very hard and have a lot to do.

799. The question is whether they are not overworked?—I have not heard them complain.

800. From your observation of the creameries, have you discovered a fair number of them in which you thought the conditions were less efficient than they should be?—I think, of all those I have visited, well over ninety per cent. were very pleasing.

801. Dr. McNEILL.—Do you mean of creameries?—Yes.

802. Sir JOHN LESTER.—You are of opinion that the presence of the creameries is an advantage from the point of view of the milk supply?—Yes, and if I thought it destroyed the home life I would not like it. On the whole, I would be sorry to say anything against the creamery system.

The CHAIRMAN.—It is very difficult to deal with the other question as to whether the owner of a dairy would deprive his family of this necessary food and supply them with something less nutritious.

803. Prof. MAISON.—Where do the labourers get their milk from?—They have either an allowance for milk or the grass for a cow in some districts.

804. The CHAIRMAN.—Of course the custom varies very much in different parts of the country?—Yes.

805. Prof. MAISON.—Are you aware of any labourers finding it difficult to get milk for their own consumption?—I cannot recall having heard a complaint.

806. Lady EVERARD.—Do you find that the Union labourers' cottages have been the cause of labourers not getting milk from the farmers?—I have no experience of that. I think a great many of the labourers could do a great deal towards getting a cow themselves if they kept their acre properly.

807. The CHAIRMAN.—You are familiar with the Dairies and Cowsheds Order?—Yes. No man can be registered without permission, and that permission is not granted until he has stood inspection.

808. Mr. CAMPBELL.—That is in your area?—Yes.

809. Prof. MAISON.—That does not universally apply.

810. The CHAIRMAN.—I understood that registration simply meant an introduction to a local authority that milk was about to be vend in a certain place, and that this fact was noted on the records of the local authority to enable their officers to see that the conditions of the Local Government Board Order as to the keeping of cattle and milk were observed?—I think you will find the words that he shall not begin to occupy the premises or to trade without the sanction of the local authority.

Mr. CAMPBELL.—That is a new shed.

811. The CHAIRMAN.—You have personal experience of the administration of this Order in a certain district; does that experience enable you to say if the cow-keepers of that district are forbidden by the local authority to utilize certain buildings until they are inspected by the officers of the local authority?—Yes, that is our rule. I have done it in a number of cases.

812. I am glad your experience is much more ideal than that which prevails in a variety of other places?—From the Sugar Loaf Mountain in Glasgow it is the case.

802. It was suggested here that it should also be competent for a local authority to issue licences?—Yes.

803. Do you think that would assist in making the Dairies and Cowsheds Order more useful?—I believe that a licence would have that effect, but I won't be myself down in every case to the local authority, whose members I am not sure are always the proper persons.

804. You are not the only one who has expressed doubts on that particular point, but, of all events, you do think that it would be advisable that in some authority power to issue a licence should be vested?—I do. In fact we have assumed it to ourselves, whether we had legal authority or not. If anybody attempted to sell milk without being registered he would be liable to prosecution, and he is not allowed to sell milk without his premises having been previously inspected.

805. Did you have any prosecutions?—We had only one prosecution.

806. What was the result?—The man was fined 1/- a week before for going to his tontine society in a dirty condition, and I had to prosecute him also for finding him in a dirty condition in connection with the milk supply, and he was fined 3/-.

807. Mr. WILSON.—I gather you have got what is practically a licensing system in full working order in your area?—Yes.

808. Lady EVERARD.—I think, from reading through the rules, that Professor MAISON is perfectly right that that power exists?—I deny it is a year and a half since I read that Order, but we drew our rules in accordance with them.

809. Miss McNEILL.—Supposing you had permitted a man to be registered, and subsequently his dairy became unsatisfactory, what action would you take?—I would give him his choice of two things—to put his dairy in order or be prosecuted.

810. If the prosecution resulted only in a fine of 5/-, would it have much effect?—The disgrace of a prosecution to a man with good customers would almost mean ruin.

811. The CHAIRMAN.—Have you ever meditated prosecutions for want of cleanliness in persons connected with the milk?—Only in that one case I mentioned.

812. Have you ever warned them with regard to bad habits?—Yes. Last Saturday I warned one particular dairy-keeper with 40 cows. I was not satisfied with the cleanliness of the cows, and I sent for their owner and pointed out the faults; he was in great distress about it. I know in his case the class of dairy boys is very unsatisfactory.

813. They are rather casual labourers?—Yes. Many of them are absolutely untrustworthy. This man gives his men £1 a week, and if he pays them on Saturday night, on Sunday they will not turn up.

814. Lady EVERARD.—Have you got a veterinary surgeon under you?—No. I do the whole thing, except that there are sub-sanitary officers.

815. They report to you?—No; to the local authority.

816. Prof. MAISON.—You get word of their report?—Yes. The Medical Officer of Health reports to the Local Authority, and the Sub-Sanitary Officers do the same, and a copy of the report is sent to me.

817. The CHAIRMAN.—You have no lay inspectors in your districts?—Not in my district, but in one of the urban districts which runs into mine, that is Dalkey, they have a man who is an ex-policeman.

818. What is your experience with regard to these unsanitary inspectors; is their inspection efficient?—I do not see how it could be. They are unfitted by training and education and everything else for the work.

819. Do you think that it would be necessary to have these inspections carried out as largely as possible by professional gentlemen?—I do.

820. Prof. MAISON.—Speaking generally, throughout the country what is the class of cow—is it an old cow or a young cow that produces the milk? You mention in the summary of your evidence as one of the reasons of the deficiency of milk the unwise disposing of calves, heifers, young calves, cows and strippers?—I think the mention of the heifers there was only to show how the stock resources depleted.

821. What is the system with regard to the milking cows—do the people keep old or young cows for the purpose of producing milk?—As long as the old cow produces milk satisfactorily she is kept. They are more likely to sell her when she milks.

822. You were going to tell us something as to the relation between agriculture and the incidence of disease. Will you explain exactly what you mean?—I think perhaps we cannot do better than take such a district as that around Mullingar and Castlepollard. If you wanted vegetables in Mullingar you would have to send to Dublin for them. There are thousands of acres of land under grass there, and this permanent pasture is not of the best, and I believe it is deteriorating. Much of it is not well looked after. You have leeches in the gaps and weeds are growing on the land. Red water in cattle is very much encouraged by the conditions on such lands. Insects which are carriers live in land of that kind. There is little labour employed in that district.

823. Mr. O'Hanrahan.—Are there any labourers cottages there at all?—There are in some parts of it. I have very frequently been driving two hours in some of the districts and never met a soul. There is no labour, and if the people were wanted to go back to tillage, for a time they would find it very hard. The labour is not there. For want of labour the land is out of cultivation, and for want of cultivation the labourer is disappearing and disease among cattle is favoured by neglect of the land. There is want of labour, want of tillage, and disease in the stock.

824. Dr. Moorman.—Phillipstown is an agricultural district?—Yes, and so you go on to Frenckford that is a good tillage district too.

825. There are large numbers of cottages being built by the Tallamore District Council?—I am glad to hear that.

826. Mr. Wilson.—While you are on the question of this inter-connection, I would like to know how the cattle trade affects the milk trade. Have you formed a definite opinion on that point?—I have. The treading and keeping of stores causes a preference for non-milking breeds. I was in Meath recently, and in Castlepollard, and I met friends buying cattle. One said, "I am looking for White Faces"—that is, Herefords—and they won't have anything else as that district. I do not think this class is renowned for its milking qualities.

827. Mr. Campbell.—There is a very large number of Black Bulls—Polled Angus—sent out by the Department?—Yes.

828. The Department subsidise about a thousand bulls every year, and a considerable number of these are Black Bulls?—Yes. I am told by the Tyrone men that the Hereford is no use to them, that it does not suit them, even as a store, as well as the Aberdeen Angus, and they say, furthermore, that they sometimes get a very bad milk from the Black Cross.

829. That is the best cross?—Yes.

830. Mr. Wilson.—Your opinion seems to be that the cattle trade has been adverse to the dairy trade?—Yes. I look upon the store trade as more exhausting to the land than anything else, because you are taking out of the land tons of mineral products.

831. Lady Eversham.—Don't you think that this eleven months' system is doing much damage to the land?—I do not think I ought to give any opinion on that subject.

832. What I mean to say is, unless you return the bone to the land you injure it?—What I want is the care of the land, and I have always been of opinion that the care of the land goes with healthy cattle, and that means increased labour.

833. You said you were told the Herefords are not good milkers?—Yes.

834. Do you not think a good milking strain could be bred with the first cross?—I think it is possible. The only thing I have heard farmers say is that the Herefords can rear good calves.

835. Dr. Moorman.—Any young animal during the time it is making its body will take a lot of bone out of the land?—Yes. There are districts which at present are given up to the store traffic. If I had my will I would increase the dairying at the expense of the stores. This is just purely a personal opinion. I think the dairying is more valuable for Ireland than the raising of stores, because it carries with it increased employment.

836. Mr. O'Hanrahan.—It means healthier land?—Yes, and an increased population.

837. Lady Eversham.—Is it not a fact that the Department's breeds are given through the County Committees. The Department cannot say to any county, you must only have a particular breed?—I cannot answer that.

Mr. Campbell.—No. Except they get a lead from the leading of a Commission like this.

838. Lady Eversham.—Is it your experience that very good grazing land is not the best for dairying?—I cannot say that. I have not gone into the matter. There are lands that are specially adapted for dairying purposes and others for fattening purposes.

839. The Chairman.—You speak of neglect of farms being a source of infection to cattle in the district to which you refer?—Yes.

840. Would it be possible to largely increase their productiveness and health by dressing the lands with lime and farmyard manure?—Yes. I am a great believer in lime.

841. These lands are practically left in a state of nature?—Yes.

842. And the owners and occupiers do practically nothing but change the cattle?—Yes.

843. And expect the land to continue growing bone-producing stores without any aid whatever other than what Providence has endowed the soil with?—Yes, that is so.

844. That is a most uneconomical use of land?—Yes.

845. And not only uneconomical from the point of view of the occupier, but also from the point of view of the well-being of the country?—If I may use the expression, I look upon it as absolutely immoral. I have in my mind a farm that I passed a few weeks ago. Some twenty years ago there were fine buildings that were never built for less than a couple of thousand pounds. The whole farm was bought for about £1,500. The man who has it lives miles away. The house and buildings are in ruins and there are docks along the fences, which are broken down. It is lamentable to look at the place.

846. Mr. O'Hanrahan.—There is some Act—I think it is the Noxious Weeds Act—and if that were carried out, and all those thistles and docks were removed, would there still be danger from the harbouring of ticks and other germ-carrying insects?—There would. That particular Act does not go far enough in the matter.

847. Prof. Murrain.—Do you think tuberculosis is very common, generally speaking, in the dairy cattle of Ireland?—Honestly, I don't. Having lived for many years in England, and compared the Irish cattle with others, I think they compare favourably with the cattle of other countries in regard to tuberculosis.

848. Mr. O'Hanrahan.—That is relative tuberculosis?—I am speaking of clinical tuberculosis.

849. Mr. Wilson.—With regard to clinical tuberculosis, what is your opinion? Are you fairly confident that in your area there is no clinical tuberculosis visible?—Yes, and I have to order cows out of the dairy.

850. Prof. Murrain.—Can you follow those cows?—I know where they go.

851. Mr. Wilson.—Would you not slaughter the cow on sight when you recognise clinical tuberculosis?—I am not strongly in favour of slaughtering any man's animal without compensation. Those of you who remember the experiments of Dr. Carmichael will know that his results showed that it was not quite necessary to slaughter all tubercular animals. A certain number of these could be used for breeding purposes, with a system of isolation.

852. Prof. Murrain.—Those reacting to tuberculin?—Yes.

853. Can you follow the cow that you have ordered out of the dairy?—She is sold in the Dublin markets as a shipper.

854. Someone else gets her?—She is very probably fattened either here or on the other side of the Channel.

855. Mr. O'Hanrahan.—Some of them would never fatten?—Some of them will.

856. Is there not a sale at poor prices of many diseased cattle to local butchers for contempt purposes—for supplying workhouses and the army, and that sort of thing?—Yes. There used to be a man in Kingsdown, who is dead, who had an army contract, and we always knew what became of our failures.

857. Prof. Murrain.—Don't you think it would be very salutary when an animal is suffering from clinical tuberculosis to destroy it, paying compensation?—Yes.

858. Mr. Wilson.—Have you any evidence that in your own district, and in others where the authority is less active, that the milk of an obviously tubercular animal is not used after the moment of diagnosis?—I am absolutely certain it is not used, because I have too good a system of espionage in my area.

859. Have you any evidence that it is done in other districts?—It would be a great pity for me to say anything to create a scare against creamy milk, because the arrangements are well carried out, but there is a great deal of milk of tubercular cows in every county I have been in.

860. Sir JOHN LAMBERT.—Do you think £10 is a fair compensation?—It would depend on the cow.

861. Is it a good average?—It sounds a good average. Supposing a person gave £100 for a prize Shorthorn cow, is he to be offered £10 for her if she is to be slaughtered?

862. The CHAIRMAN.—The compensation is limited according to the Order. That was a question I put to another witness—whether, in administering the Order, an official would be influenced by the knowledge that in slaughtering an animal, and allowing only £10 compensation, he may be inflicting a pecuniary loss on the owner?—There is a great danger that that would influence a man of sensitive mind.

863. Prof. MERRIN.—£100 is an exceptional case, and the person who can pay that would be able to take proper precautions?—Many a dairyman would give £24 for a cow.

864. The CHAIRMAN.—What I fear is that the sum fixed is so low that the officer will feel that he is doing a serious act with regard to a certain individual who has, through no fault of his own, had the misfortune to buy a cow that turned out to be tubercular, and for which the owner may have paid £26, £18 or £20, and that the person who puts the Order into operation against him knows that his act means sacrificing £10 or £12 of the owner's money; I think that he would be inclined to hesitate before carrying out such a drastic measure?—Yes. And there is one additional point, and that is, that the person having the administration of such an Order should be in an independent position. Take my own case. Supposing I was altogether living on my practice and had to depend on the dairyman, as some veterinary surgeons have to, would I not be loath for me to go and condemn my own client?

865. That is exactly what I say, and I think there should be some permissive power to value the animal with some reference to its real worth. You may say £20 is a good price for a diseased animal, but a fortnight or a month before the dairyman may have paid £16, £18 or £20 for the animal?—I think that the official should be a whole-time officer, if possible. That is why I object to the local authority. If there were some central authority with officers to carry out the inspections the work could be done properly.

866. Miss McKEILL.—Do you think that the Inspector so appointed should do all the work, or should there be a reference from the local men?—The veterinary surgeon is the proper person to inspect. If necessary, increase the staff rather than bring in laymen.

867. Lady EVERARD.—You would suggest a whole-time officer for each county?—For such a district as he would be able to work.

868. And who would be responsible to—some central authority?—Yes.

869. You say, not the local authority?—No, not the local authority.

870. Mr. WILSON.—By the local authority, would you include the county council?—I look on the county council as a local authority.

871. Would it be much more expensive?—To the State?

872. Yes?—I think it would be an economy.

873. That is, the present salaries are scattered over a large number of veterinary surgeons, who only give part of their time to the work?—Yes. One veterinary surgeon might have three Unions, very often in different counties. Perhaps one of the Unions would be 35 miles from where he lives, and when he is summoned he has no power to do anything. In fact the whole system at present under the Contagious Diseases Act is a ridiculous condition. Some districts are without any veterinary surgeons. There are three or four in Omagh, with a population of less than 4,000, and if you draw a line from Ballinacree to Galway, and from Ennis to Noreagh, and complete the square, you had, until recently, an area of something like 2,000 square miles with not a veterinary surgeon in it; and until the Department sent a number of young men down into the country there were Counties Leitrim and Donegal, and that district from Killybegs, with a curve to the coast, to Cork, some 4,000 square miles in all, with no veterinary surgeon.

874. The CHAIRMAN.—What has been done is not by any means complete?—It is being done only in the

Congregated Districts. It would be a saving to appoint whole-time officers in other parts.

875. Mr. CAMPBELL.—Is it your experience that the local authorities who are the masters of the present Inspectors are also the men who have to be inspected by the veterinary surgeons?—Yes, that is so.

876. And you don't consider that very satisfactory?—No, a man could not be your employer and you have punitive powers over him.

877. The CHAIRMAN.—Have you discovered that there is considerable loss from contagious abortion?—Yes; in every district in Ireland.

878. Has not that been checked by the dissemination of knowledge amongst those who are owners of the stock?—I believe so. In fact, only for that knowledge I think the dairy industry would have been practically destroyed.

879. It could not stand the strain?—No. Here are a few figures. In County Kerry there were 99,600 cows, and after making a very careful calculation, I came to the conclusion that I was putting it at a low estimate when I said that ten per cent. of the cows were suffering from abortion; that means the loss of a season's milk and a calf. Putting a calf at £1 and the milk at 45 you have a loss of £16. 4,000 cows at 25 would mean £20,000 lost in that county. Assuming that we had a million and a half of milch cows in Ireland, and that ten per cent. of these cows suffer from abortion, that gives you 150,000, and multiplied by five it gives a loss of three quarters of a million sterling.

880. Mr. O'BRIEN.—That is a low estimate?—Yes. If I said two or three millions a year loss I would be nearer to it.

881. Would not that loss be modified to a great extent if there was some winter dairying and tillage, in this way—that the cows would not then be calving at the same time, and where a cow slipped in the early stages she could be put to the bull again. They don't do so in my own district now?—That is so. In Tyrone they are complaining bitterly because the calf would not come at the right time. These are sold off and shipped out of the country, or go to be fattened.

882. Lady EVERARD.—Do you consider this a usual thing?—I can give you an instance. If you go to Chesham or Kilmslick at certain seasons of the year you will find cows sold in thousands for no other reason than that they have aborted, and these are sent about the country and into England, spreading the disease wherever they go, and are lost to the dairy industry.

883. Mr. WILSON.—Does your estimate of ten per cent. refer to the present moment?—On some farms it will run to ninety per cent., and in others to one per cent. Only yesterday I met a man who had ten cows, of which nine aborted this year. There was a lady in Chiffney, Co. Sligo, to whose place I was sent, and I inspected her herd of 25 cows, and found only three of them were in calf. That meant a loss of £125 to her, near to £200.

884. Mr. CAMPBELL.—Did you not go into the whole thing rather carefully in the County Limerick at one time?—I did, but I fancy I handed over my papers to the Agricultural Inspector there. I think he and I went into the matter together.

885. You could not say now as to whether there has been any improvement in the County Limerick?—No.

886. You do not know whether there has been an improvement owing to increased inspection?—I cannot answer with regard to the Dairy and Cereals Order, but in other respects there has been a great improvement.

887. Lady EVERARD.—Don't you think it possible that extreme cleanliness and treatment ought to put a stop to this disease of contagious abortion?—Well, there is no doubt that the disease is much favoured by dirt, and I believe that strict attention to hygiene would benefit it; but in addition, for the present, we ought to hope for some means of securing immunity. It is easy to tell the people to keep clean, but one dirty man in a parish could set all the others wrong, and, for the present at any rate, it would be desirable that some means should be found of securing immunity.

888. Prof. MERRIN.—The farmers themselves are becoming alive to the fact that this is a very serious question?—Yes.

889. And they are doing their best to check its ravages?—Yes, they are doing a great deal.

890. Mr. O'BRIEN.—Are you of opinion that the decrease in the milk would be largely due to the prevalence of abortion?—Yes, it is one of the chief causes.

893. Not only that the calves are lost, but also that it makes it very difficult to keep up a strain of good milkers?—Yes. I know one man who invested his all in a herd and contagious abortion broke out amongst his stock and broke him, leaving him dependent on his friends.

894. You are of opinion that the milk supply depends to a large extent on getting rid of this disease?—Yes.

895. Is it a very big item?—It is very important.

896. The Cuckoo?—Is it really the most important item?—I think it is.

897. Mr. O'BRIEN.—Is the germ that produces this disease left lying on the ground, or is it absolutely destroyed? We know that in a great many cases the fetus is left lying about and nothing is done. Do the germs that are lying on the land with the aborted fetuses die readily or stay in the land?—A good deal would depend on the conditions of the weather, and so on. In many cases I have known them to lie in the open air for weeks.

898. Supposing you have the aborted fetuses lying about the ground, is there danger to cattle grazing over that ground?—Yes, I believe so, for a considerable time. I can go as far as three weeks.

899. Where the Department of Agriculture has established premium bulls—I suppose these have come under your notice?—Not officially, but I have inquired about them.

900. Are these bulls supposed to be under the immediate inspection of any particular person?—Yes, under the Department's own officials, but that is not my branch.

901. There are precautions taken that these premium bulls, to which practically the best cattle are sent, are inspected and disinfectant and every care taken that they will not be the means of spreading infection?—The Department has very strict rules, both with regard to treatment and prevention.

902. I say this because there is a very prevalent idea that people who have felled with their own bulls to put their cattle in calf send them as a last resort to the Department's premium bulls, and that in consequence the premium bull is very often infected and is a spreader of disease. I want to know your own experience with regard to that. A little common rat of a bull, which no one cares about, is used because he escapes infection to a large extent; but the premium bull as in the centre of the district, and he is very much exposed to infection, so that he often gets a bad name. Is there any provision that the cows brought to this bull are disinfected before they are brought?—I always tell bull-owners that if there is the slightest suspicion of a cow to send her away.

903. Is there any test to show whether these germs are present in an animal?—There is no clinical test.

904. Prof. MERRIAM.—Have you tried abortion?—No.

905. I may tell the Commission that abortion is not satisfactory.—We are very much hindered by non-sensical ideas encouraged by people who ought to know better. There is the theory of the goat. At the bottom of that there is a little grain of truth—the fact of the mother is that any farmer whose cattle are suffering from abortion would find goat's milk useful as a substitute for each cow's milk. In the same way the method of prevention of locking was to hang up a black leg in the chimney.

906. Mr. CAMPBELL.—Are there many other superstitions with regard to the prevention of abortion?—Yes; one is a surgical operation which is unconscionably cruel and absolutely idiotic.

907. Is there the superstition of burying the fetus in the stable?—Yes.

908. Mr. O'BRIEN.—There is a prevalent idea that the keeping of goats on the same land as the cattle will prevent abortion. Is there anything in the fact that the goats will eat a certain herbage that the cows will not eat?—I don't know that.

909. Mr. CAMPBELL.—You mentioned the Cattle-craig experiments?—Yes.

910. Can you tell exactly what methods were adopted there?—It was a matter, I think, of isolation.

911. Do you think the use of the tuberculin test to separate the sound from the diseased is reliable?—Yes.

912. The object is to separate the cattle?—Yes.

913. Suppose we did that in this country, what would you do with the animals that reacted to the tuberculin test?—I would use them for anything except dairy purposes.

914. Have you any idea as to the percentage of dairy cows that would react?—I can only make a guess.

915. You know the cattle at Glasnevin?—Yes.

916. Would you be surprised to hear that 50 per cent. of them would react?—I must confess that I would not be surprised to hear it. What I mean to say is, that these animals have been selected not for their health but for their points and milking qualities, and everything else, of course, has been subordinated to that; but I think that the average of tuberculous cattle throughout the country would not be more than ten per cent.

917. Dr. McWenney tested the cattle at Glasnevin ten years ago, and they are of the same type, the best that can be bought in the Dublin market, and he found over 40 per cent. of them reacted, and your estimate is very much lower than that of any other person who has studied the question. If that were the case in the bulk of the Dublin market, don't you think it would apply elsewhere?—I don't think so. I never get a herd in County Dublin so high as that.

918. Would you be surprised that the percentage in Great Britain is over 50?—No.

919. Prof. MERRIAM.—Do you remember the result of the examination of Queen Victoria's herd at Windsor?—No.

920. Forty animals were tested and 36 reacted.

Mr. CAMPBELL.—That was 90 per cent. You think the percentage in Ireland is not so high as in Great Britain?—Quite so.

921. We will shift the ground to Great Britain. There you will agree with me that probably 50 per cent. of the cattle will be found to react?—Yes.

922. What would you do with that 50 per cent., bearing in mind that they are the best that can be found in the country?—I would breed from them and carry on an isolation plan, but I would not persist in breeding from them. I would fatten them.

923. You would breed from these fine cows?—Yes, and take their calves from them.

924. When that cow was finished, what would you do?—Send her to the butcher.

925. Would you consider it a serious thing if we sent these cows to the butcher?—No. If you adopted the system that is adopted in some foreign countries of marking different grades of meat, and have some of it destroyed and some stockised, you could make very good use of such meat.

926. Taking the animals at Glasnevin that would react, do you think that there would be much likelihood that these would be condemned for food?—I am thinking of one at Glasnevin that died of tuberculosis.

927. That was a pure-bred cow?—Yes.

928. Take the dairy herd. Do you expect that if these animals were fattened and sent to the butcher they would be condemned for food?—You never know until you cut them open.

929. Would you be surprised that none of these had been condemned?—It would depend on who had inspected them. Was it a whole-time officer?

930. I don't think so. Are not people sending dairy cows of that kind to the market every day, and they are always as likely to be tubercular as the cows we are referring to?—Yes.

931. Would you expect that many of them would be unfit for human food?—Do you mean reacting cows?

932. Yes.—I think a large proportion of them would pass.

933. I asked you the question for a special purpose, because if we are going to try to eradicate tuberculosis it can only be done by a system of isolation and rigid inspection in this country, but we are not allowed by public opinion in this country to advise the farmer to sell his cows to the butcher if they react?—I am afraid I have often done it. Take Greytown—a great number of professional men come there from Dublin, and the dairy people are put on their best behaviour. Every dairyman had his cows tested for tuberculosis every spring.

934. Mr. O'BRIEN.—By whom?—I declined to do it, as I am their Inspector, and they get outside veterinary suspicion, and they get certificates that their cows are free from tuberculosis. Any cows that are condemned are sent off to the Dublin Market.

935. Sir JOHN LAWRENCE.—There is a good deal of grass feeding of Dublin dairy cattle in your district?—Yes.

936. What are the arrangements for milking these during the summer?—On a summer's evening they drive out to the field. They unharness the horse, and

tip up the van, and sleep along the hedgerow, wake up in the morning and pick a few mushrooms. They milk the cows, and have a cloth to strew the milk into the churn.

904. Are the cans clean when they go out, or do they wash them in the nearest ditch?—I think they scald the cans for their own protection to prevent the milk going sour. The point I always grumble about is the condition of the men themselves—men going out like that, and sleeping under the hedgerow, and starting to milk in the morning. Another point that struck me this morning was the careless way the milk was brought on the railways. I know one man who had a dairy in a certain urban district, and owing to his dirty habits it was rendered impossible for him to carry on his business there, and he went down the line. He sends his milk up by train. There is no inspection where he is, and first of all there is the condition of the milk that such a person would send and the conditions under which it is brought up. Some time ago, at a station a few miles from Dublin, a man was prosecuted for stealing milk out of milk cans and substituting water. If that can be done any contamination can go on.

905. Sir JOHN LESTER.—What is the effect on the land of this excessive sending out of cattle?—It must deteriorate to a certain extent. Very often these dairymen find it necessary to supplement the grass, and in that way it is rather an advantage to the land.

906. Mr. O'BRIEN.—Feeding the cattle with feeding stuffs?—Yes, generally grain.

907. The CHAIRMAN.—What is your opinion as regards grain as food for milk cows?—I have never had any reason to blame it for any disease.

908. Is not there an amount of fermentation?—I think a much more dangerous thing is the wash. Many of the dairymen are of opinion that wash is one of the causes of abortion in housed cattle.

909. Has it any other injurious effect on their health?—I don't think so. It is said to feed the milk.

910. Lady EVERARD.—Under whose inspection are these boys and cattle that are sent out from the city to the country?—I don't think they are under anyone's inspection; but the urban authority from which they come have the right to come after them.

911. Miss McILNANE.—The authority by which they are registered?—Yes. If a case comes out from Dublin Sir Charles Cameron's office can follow him.

912. Lady EVERARD.—We asked that question of Sir Charles Cameron, and he did not think they had the power. Supposing a tubercular cow comes under Article 21 of the Dairies Order, has the Medical Officer of Health power to go to the district where the milk comes from?—I believe so.

913. Prof. MERRILL.—Is it your opinion that Sir Charles Cameron, or one of his officers, would have power to go into the district supplying the milk to Dublin and examine the condition of the dairy, and also examine the cows, and take samples of the milk?—I believe so. At any rate, Kingstown and my district take it for granted that such a power exists. What we do to this, so as to save trouble—the Executive Sanitary Officer in Kingstown will write to the Clerk of the Rathdown Union, and ask him for any information he requires, and we also give them any information they want.

914. Mr. O'BRIEN.—With regard to the train-borne milk, is there any system of inspection at either end to see that the cans are properly closed and that they are properly treated on the railway?—I have never heard of any; and what is more, you will sometimes see on the receiving platform milk transferred from one

vessel to another and perhaps a vacuum cleaner working a few yards away.

915. I had a letter from a gentleman on this question, and he stated:—"I should like to draw your attention to the filthy state of the milk arriving in Dublin. Some time ago I was waiting at Westland Row for the arrival of a train. I saw the milk train arrive with the cans in open wagons. Few, if any, of the cans had tight-fitting lids, and one or two were covered with a piece of old mackintosh in a filthy state. I took the lids off several of the cans, and there was a regular crust of filth on the top of the milk." Do you think that is a prevalent condition?—I might have written that letter myself, but I did not.

916. Do you think it wise, in order to prevent that sort of thing, to have provision made for taking action against the Railway Company for carrying milk in that condition, and so compel them to release receiving it unless it was properly sealed?—Somebody should be made amenable.

917. Do you think that all milk cans sent up by train should not only be latched, but that also they should be sealed?—That would be a very good plan. They stole 4 lbs. of butter from me a short time ago, and the Railway Company gave me no redress when I reported the matter to them.

918. Prof. MERRILL.—Is it not a fact that the beef of a tubercular cow is not very dangerous for human consumption?—I fail to see how it could be.

919. Unless there was generalised tuberculosis?—Unless you get a lesion in a very advanced state, but speaking generally, the greater part of the carcass is innocuous.

920. If it was a local lesion you would not destroy the carcass?—No.

921. In the case of a thorough-bred cow, no one might suspect her of tuberculosis, and she might have it in a generalised state?—I quite agree. I have seen cattle brought in the Dublin market in good butcher's condition which were absolutely unfit for human consumption, being so affected with tuberculosis.

922. Dr. MOONSHAN.—What about the calves of such animals?—The calf for some time after birth would probably not carry the infection.

923. With regard to the White Scour, is that found in these creamery districts?—It is found there, but not solely there. The disease exists chiefly in districts where there is only summer dairying. But it sometimes turns up in other districts, being carried there by the system they have of selling their calves in those districts. As soon as the calf is born they take her away and sell her. These calves may develop the disease.

924. It is born with it?—Yes, but I believe also that it could be found hanging about the sheds.

925. It is not the milk that does it?—No.

926. Mr. CAMPBELL.—I think the impression was left on the minds of some of the members of the Commission that the white scour was a co-extensive with the creamery districts. To some extent that is true, but there is nothing of that kind in the North?—Except where it is imported.

927. Do you consider that the creameries are in any way responsible for the white scour?—Not for any disease at all, except when the creamery milk is improperly used.

928. The CHAIRMAN.—We may have to call on you again, Professor Mason, to give us a little further evidence at a later stage?—I shall be glad to come again if you require me.

Mr. B. A. ANDERSON CONTINUED.

929. The CHAIRMAN.—You have been connected, Mr. Anderson, with the Irish Agricultural Organisation Society for many years?—Since it was started in 1894.

930. Would you be good enough to give us, very shortly, the objects for which the Association was started and the circumstances under which it was called into existence?—I do not mean anything very elaborate, merely an outline?—In 1889 Sir Horace Plunkett introduced the idea of agricultural co-operation amongst Irish farmers. This idea was pursued until 1894, when the work resulting from his advice had grown so large that it necessitated the establishment of a Society to carry it on. The Irish Agricultural Organisation Society was formed in 1894. The

objects of this Society were to promote agricultural organisation among farmers in Ireland wherever it appeared to the Association to be desirable that farmers should act in common rather than as units.

931. And as the outcome of that idea the Organisation extended its operations into different parts of the country?—Into practically all the counties of Ireland.

932. What part did the Irish Agricultural Organisation Society play in the establishment of creameries?—When it commenced its operations there were a considerable number of proprietary creameries established in the South of Ireland side by side with a few co-operative creameries, nevertheless in number, I think, which had been established by the pioneers, as I may call them, of the co-operative movement.

963. These were gentlemen who carried their opinions into certain districts before it began to move as a regularly organised body?—Quite so. The idea of the founders of the movement was that the creameries which had been established would effect a revolution in the dairying industry. They had transformed the home dairy industry into a factory industry, and the idea which possessed the promoters of the Agricultural Co-operative movement was that if there was profit in this business it should become the profit of the farmers who co-operated, rather than the profit of the individual who exploited them.

964. I take it they had a twofold object in view; in the first instance, they desired to improve the conditions under which Irish butter was produced, and having accomplished that object they desired to secure the best possible price for the improved article?—That is so. The Irish butter trade had been a very great national asset up to, I may say, 1880, when foreign competition began to close in about 1880, and Irish butter was driven, not only from the British, but also from the Irish markets. The Danish butter first came in, and butter from other countries shortly after began to follow, and it was ascertained that this new competition was entirely due to the fact that the farmers of the competing countries had adopted modern methods and the most up-to-date machinery to produce butter of a better quality, and what was of more importance, of a uniform quality.

965. And it was obvious at that time that if some effort was not made to improve the trade generally, that Irish butter must go under in the competition with the improved methods practised by other countries?—The Irish butter trade had practically gone under at that time. The prices obtainable were such that quite a large number of farmers had gone out of the dairy business altogether, and had reverted to dry stock farming.

966. Finding butter-making was an unprofitable occupation?—Yes.

967. How far do you think that the establishment of creameries has affected the milk supply for domestic purposes in the districts where they have been established?—As far as I can ascertain, the complaints which have reached us, and they are very few, have come from counties where there are no creameries at all. The most bitter cry has reached us from County Meath, and some from County Roscommon, but in the creamery districts we have had no complaints. Perhaps that was because the people might not think that we were the proper body to appeal to in the matter, but at all events, we have not heard many complaints as to the scarcity of milk. At the same time, I am quite prepared to admit that there is a scarcity of milk all over Ireland, and not only in creamery districts, and I do not think one part of Ireland is much worse off than another in that respect. I may also say that one of the ambitions of our Society is to so improve the conditions under which milk is produced that it may be provided for human consumption in country and urban districts as well at a price which will enable it to be bought by the very poorest of the people.

968. Do you happen to know whether creameries ever send milk for local consumption?—They do.

969. There is nothing in the principles laid down in the establishment of creameries, or in the agreement entered into by members of Co-operative Societies, to prevent their selling milk in small quantities for local consumption, if the demand exists?—Absolutely nothing. There is a rule which provides that when a farmer joins a creamery he shall bind himself to supply all his milk to the particular creamery in which he has invested his money, except such as is required for local consumption.

970. Your arrangements do not forbid him from utilizing whatever milk he thinks necessary for his own family?—No.

971. Mr. O'BRIEN.—You said just now, "for local consumption," that he is not restricted for local consumption?—I think the words are "domestic consumption."

972. The CHAIRMAN.—There is no such prohibition as I have referred to in your rules?—No.

973. And it would seem that the price paid at creameries for milk is by no means prohibitive?—No.

974. The price paid at the creameries is a price calculated on the percentage of butter fat which the milk contains?—It is really not bought, but a value is put upon it in proportion to the butter-making capacity of

the milk, and this price, which perhaps would not be 1d. a gallon, would be far less than that milk would realise if sold retail. If any creamery could dispose of its milk at what I might call the popular price of 1d. per pint, I have no doubt they would do better business by selling milk than by making butter.

975. So that in your opinion the retail trade of milk would yield a larger percentage of profit, both to the producer and to the Co-operative Society, if it could be sold for local consumption at ordinary rates?—I assume that it would mean from 50 per cent. to 80 per cent. increase, so that there could be no question of absence of inducement to the farmer.

976. And from the pounds, shillings, and pence point of view there can be no doubt that the prices offered are not so high as to induce the farmer to withhold a sufficient quantity for his domestic supply and a supply for his labourer?—No. The establishment of creameries has undoubtedly raised the value of milk. Under the old system prices were lower, expenses greater, and production less. By the introduction of improved machinery you can produce a larger quantity of butter from milk and reduce expenses, and by placing a uniform article of excellent quality on the market you can get a better price; consequently the value of milk has appreciated, but not to such an extent as to prevent the creameries selling their milk to the people of the district if there was an organised demand for it.

977. Mr. CAMPBELL.—At 1d. a pint?—That is so.

978. The CHAIRMAN.—You think creameries have no influence as restricting the domestic supply of milk?—No. I put it down to other causes. In the first place, if a farmer now begins retelling his milk to neighbours he comes up against two obstacles—one is dishonesty on his own farm, that is to say, a person buying a pint of milk may get a quart. No farmer likes to hand over this kind of retail trade to irresponsible persons who are easily influenced. Another reason is that he comes under the operation of the Dairies Order. It is quite true that he comes under the operation of that Order when he is a supplier of milk to the creameries, but I think he feels that if he throws in his lot with a number of other people who are also supplying creameries, the operation of the Order will not be so harmful to him as if he were acting as a milk seller in his own district.

979. Dealing with the question of the milk supply, how far do you think the administration of the Dairies and Cowsheds Order restricts the farmers from marketing in the retail sale of milk?—I am quite sure that, while we were inclined to welcome any restrictions which are fairly imposed on the production of milk, or any article which is required for human consumption, we think that some of these restrictions are enforced in a way which is really impeding the dairy industry of the country as a great national asset. Apparently there is no regular system of administration of this Order. In the evidence which I propose to offer on this subject I would refer to the replies of sixty-six Secretaries to whom circulars were addressed. In eleven of these cases the Order was not adopted at all, in twenty-five cases it was adopted, in twenty-one cases it was strictly enforced, in twenty-four cases there was a serious loss of milk supplies, in twenty-nine cases it was not strictly enforced, in twenty cases the Order made no difference whatever. In seven cases only it increased the attention of the farmers to the necessity of greater cleanliness, in forty-six cases no improvement was visible. Fifty-eight of the objections protested against the application of the Order unless it was made applicable to all milk producers, whether they were making the butter in their own homes or sending their milk to the creameries.

980. Are these replies from all over the country?—Yes. I have in a copy of the circular that was issued and a list of the queries that were attached thereto.*

981. Do you suggest that any of the provisions contained in the Dairies and Cowsheds Order were too drastic in their effect?—Well, it is rather a large order to set oneself up as an authority superior to the Local Government Board, but I do think that the provision requiring 500 cubic feet of air space over each cow ought to be modified wherever it can be proved that the ventilation of the cowshed was adequate. I can conceive a cowshed so constructed that it would contain 500 cubic feet of air space and yet have a vitiated atmosphere, and I can conceive a shed in which the air space would be less and sanitary conditions complied with. On the whole, I think the intention of

* See Appendix A, page 356.

the Order was excellent, and so far as the co-operative creameries are concerned, our opposition would drop if it were extended to dairy farmers generally.

982. Surely that is not the fault of the Order itself, but of the Local Authority or Central Authority responsible for the administration in not enforcing it?—The Order is obligatory on the Local Authorities.

983. Obviously the duty of enforcing its administration rests with the Central Authority?—With the Local Authority when they put it into force.

984. What I wanted to convey is this—that the Central Authority promulgating that Order has a certain power to enforce the being put into operation by the local body if it is desired?—Yes.

984. Do you complain that that power has not been made sufficient use of?—We complain in some cases that the Order has not been enforced with any regularity; in many cases the Order has not been enforced at all, in others it is enforced partially, in others it is enforced in a way that is calculated to injure the most progressive dairy farmers—the men who send their milk to creameries.

985. In other words, if the operation were made universal you would not find fault with any of the powers conferred by the Order?—No; we might even be inclined to suggest more stringent regulations.

986. We would be glad to hear your suggestions as to extended powers?—I am speaking for a Committee and not for myself, but I think I might say that the Committee of the Organisation Society would be prepared to go just as far as any reasonable suggestion would carry them as regard to the supplying of pure milk for home consumption, provided that the conditions under which that milk is supplied apply all round to people making butter in their own homes or supplying creameries. What we object to is, that when a number of farmers in a locality have gone to considerable expense to level up the quality of Irish butter they should be punished upon by the Local Authority, whereas people who stick to the old system of selling butter, and selling it possibly under insupportable conditions, are let go scot free. We object to that, and think it is a public danger, and, furthermore, I may say that a certain amount of milk must be sold over which there is no supervision. With the creameries the supervision is very strict.

987. Your complaint is that there is unequal administration of the Order?—Yes.

988. In some districts you say it is rigidly enforced, in others partially, in others it is in operation but scarcely enforced at all, and in others it is not in operation?—Yes. But the main objection is that it does not apply all round.

989. Mr. WILKINSON.—That rather brings up the point of Article (1), Section (V.), of the Order itself, and of the interpretation. The Order in its present form expressly excludes the very class of people whom you would think it ought to include?—Yes.

990. If the existing law were enforced these people would still be left out?—That is so.

991. The CHAIRMAN.—At present, as you are aware, the only power taken under that Order is to enforce regulation. It has been suggested that that might be extended to licensing. What would your view be of that particular question?—Provided it is universal, I have no objection to licensing as well as regulation.

992. Do you think it would be an additional safeguard to the public health and also ensure the purity of the milk supply?—I personally would have no objection to it at all.

993. I see you want to direct attention to the absence of dairying; does that refer to certain districts?—Yes.

994. Have you got any districts in mind where it is absent?—The great belt between Drogheda and Wicklow right across Ireland—the English Pale on the eastern side and the congested districts on the western. One part is wished to be too good, and the other is too bad for dairying.

995. And this is used to supply the Saxon with beef?—Yes.

996. Is it your opinion that the land of that district could be more advantageously and economically used in the production of milk rather than in the production of beef?—I would prefer not to give an opinion on that point, because I have heard people say that if you put a cow on the dairy farms of Meath she tends to grow fat rather than produce butter. Then, on the Western side the land is too bad to attempt dairying on anything of a large scale. I think, though, that

there are quite a number of districts on the borderland, if I may say so, where tillage is being practised in which the future of winter dairying will be found. You cannot continue dairying in any county unless you produce an all-the-year-round supply. These tillage districts may in time solve that problem, because farmers there understand the cultivation of the land, and would, I am sure, be ready to try experiments in feeding which would enable them to produce milk during the winter, as our Danish competitors do at the present time. I know districts in Denmark where they have an absolutely uniform supply, and the quality of the butter produced is practically identical all the year round, and this is due to the fact that they understand the question of milk production and also of feeding, which is an important thing. They have a great deal more of stall-feeding than we have in Ireland. We may rely on six months of grass feeding, and have six months of stall-feeding, but in Denmark they cannot count on more than four months of grass feeding, and that is artificial grass.

997. Do you think that winter dairying could be made to pay in Ireland?—I think it could, and I think it must come. I have always held that if winter dairying cannot be established in Ireland the dairying industry must ultimately fail.

998. I take it that you have no doubt that in order to carry out winter dairying in a scientific and practical way tillage is essential?—Yes, absolutely.

999. And that if we hope to secure anything like a uniform supply of milk all the year round winter dairying is necessary?—That is so.

1000. Is there anything in the soil or climate of Ireland which forbids the hope that it is possible to produce such food as will be suitable for the maintenance of cattle in the season that grass is not available?—I don't think so. There are difficulties undoubtedly. There are parts of Ireland where grass is the main fodder, and where the land is rather of a heavy nature and rather difficult to cultivate; but I have been informed recently, and I have reason to believe my information is correct, that crops could be produced for the ensilage system, as in America. It was tried in one or two places with success. One gentleman who attempted this system of feeding got first prize for winter-made butter at the Dublin Show. Without creameries you cannot have winter dairying, because you must be independent of temperature, and you must have a proper apparatus to remove any unpleasant odour. It is quite possible to get rid of any difficulty that might arise under this head. For instance, if you were to feed cows on a suitable food—

1001. Turkeys?—I don't know if you could use turkeys, but I believe you could get rid of bad flavor by judicious pasteurization and by inoculating the cream, which will give practically the same flavor to the butter as that made from grass in the summer. I think that the question of feeding is becoming more and more simple as we go on. It is mainly a question of what class of food you can produce cheapest.

1002. Have you any reason to think that the milk is not supplied to creameries in a reasonably pure condition?—As regards cleanliness, I am afraid that the habits of the people are very much against the supply of pure milk, but I am glad to say, after an experience of twenty-two years, the cleanliness of the milk is vastly improved, and we don't notice now such things as we did when I began this work.

1003. Can you say whether the milk is affected by any germs of disease?—No; what I can speak of is the absence of adulteration and dirt.

1004. I take it you would be in favour of supporting any legislation which would improve the conditions under which milk is produced, either from the hygienic or economy point of view?—Certainly. May I supplement that manner by saying that if such regulations were enforced, and we were able to tell the public that our butter was made under these conditions, I believe that it would be an advertisement of enormous value to the Irish trade.

1005. And enhance its price?—Yes.

1006. You allude in your summary of evidence to the low rate of wages paid to the agricultural labourers?—Yes.

1007. Do you speak of the country as a whole or of certain districts?—I am speaking of it from the Board of Trade returns, as compared with the returns from England and Scotland, and also with the districts in Ireland with which I have an intimate knowledge; and I have come to the conclusion that the scarcity

of labour in Ireland is very largely due to bad wages and the absence of inducement to labour on the land, and that the land is becoming deteriorated in consequence. Emigration is bleeding the country white, and the people who are left are not fit to labour, and if they were fit to labour the wages which are offered are not an inducement to labour.

1008. When you speak of the scarcity of labour, do you mean that the labourers are not in the country or that they are unwilling to engage in the occupations which demanding importers?—To both, and I think that the number of people who employ large numbers of agricultural labourers is reduced. They have sold their properties and have left, or are about to leave the country. Quite apart from that, two systems of legislation have materially affected the relations of the farmer and labourer. One is the legislation providing the labourer with housing accommodation, and I wish the Commission to clearly understand that I would welcome personally any legislation which would give the labourer a release from the hovel in which he used to live; but I think the present system of providing him with a house is open to so many objections that it is very doubtful whether it has accomplished its object.

1009. I would be glad if you pointed out to the Commission exactly what you think is the reason why the provision of these houses has in a certain degree decreased the supply of labour?—May I give my own case. I farmed about 400 acres in the County Cork myself. On that farm we employed a certain number of men. This was before the Labourers Acts. These men and ourselves took good times and bad times as they came. We lived in a sort of friendly community which had nothing else in view but the success of the farming, and these people put amongst other things a plentiful supply of milk, and the young children got as much milk as they wanted. The labourers also got fresh plots of land for potatoes every year, and they had fine houses which, I admit, were not very good. They had poor wages, but they were contented and happy, and no more loyal or honest body of men could be found. Each qualified and specialized in the particular branch of work he took up. They were very efficient and absolutely honest, and the most loyal men you could meet. If you drops were in jeopardy they would work until dark night to save them. What is the position now? They are no longer attached to the farmer. They have houses at a rent which represents only one-third of the cost, and the other two-thirds are paid by the employers, and the farmer takes advantage of the fact to pay his labourers less. The labourer is under no obligation to work for the farmer, nor the farmer to employ him. I don't think I am going too far when I say that the effect of this legislation is to bring about an absolute divorce between the farmer and the labourer in Ireland, greatly to the disadvantage of both classes.

1010. Don't you think that economic causes generally have led up to this condition of affairs. Independent altogether of the changes which have taken place, don't you think that the spirit is different between employer and employee than it was in the days you are referring to, and that if there had been no Labourers Acts the relations between the farmer and labourer would have altered?—I think they are going to undergo a further alteration. I think that the relations between the farmer and labourer are going to become more and more alienated. I think that the labourers who are organizing themselves into an association in the South of Ireland as fast as they can, are going to demand an economic holding; that they are going to ask the farmer for a share of the land that he has bought, and this is probably going to produce one of the most bitter fights that we have ever seen in this country, and I think it is coming, and very soon. The reason I introduced this matter into my evidence was because I wanted to show that there is one cause which may possibly operate against the labourer being able to get a milk supply from the farmer—that they are no longer on the old friendly terms.

1011. You have dealt with that to show why you believe the farmer does not like to retail milk?—I have given my reasons for that.

1012. Do you suggest that the enforcement of the Dairies and Cowsheds Order is more rigidly carried out against the farmer supplying milk to the creameries than to others engaged in different forms of the dairy industry?—No; I would not say that for a moment. As regards the purveyor of milk, the Order is enforced with indiscriminate strictness or stringency.

1013. Have you any suggestions to make with regard to the means whereby the scarcity may be supplied to districts where the creameries are not actively working?—Yes. I think there is no difficulty at all about that. At the present time we are in consultation with a new body recently brought into existence—the United Irishwomen—who are concerning themselves with just such questions as this Commission has been called to inquire into, and one of the foremost subjects in their programme is the question of supplying milk to the homes of the people. We have told them that wherever they organize a demand for milk we will arrange with the creameries in that district to supply that demand with the very best milk, and if necessary we will get the creameries to set aside the milk of the very best districts that supply them, so that the milk will be of the very best quality. The price which we set before us is the popular price of a penny a pint, and I don't think anyone can say that pure milk is dear at that price. The supply would be available at the creamery itself and also in different districts, if necessary, in the creamery district.

1014. Do you propose that there should be depôts established for the distribution of the milk, or was it the intention that the dairy farmers should supply the order on the roadside on his way to the creamery?—It was proposed that the whole thing should be done through the creamery, owing to the fact that the farmer is slow to go into the business. He would prefer to have the whole business done by the creamery, but there may conceivably be cases where, in a remote part of a creamery district, it may take too long to send back the milk to the people. In such a case a farmer might be asked to undertake the local supply in that district, and where the supply was sufficient to warrant him, to put some responsible person in charge of it. You might by those means overcome the farmer's objection to retail the milk.

1015. If the scheme is to be satisfactory it must guarantee a certain demand at a fixed price?—Yes.

1016. Mr. WILKINS.—Is the demand not an estimate at the present time?—No.

1017. The CHAIRMAN.—Does any feeling exist in the creamery districts that creameries are responsible in any way for the shortage of the milk supply for domestic use amongst the population who are not engaged in supplying milk to creameries—I mean house-holders?—I am not aware. May I go back here to a previous point? I elaborated, perhaps unnecessarily, the effect which the Labourers Acts have on relations between the farmer and the labourer, but I wanted to say that there was a second reason why the farmer and the labourer were kept further apart, and that was the introduction of the Workmen's Compensation Act. To my own personal knowledge, quite a number of farmers who employed labourers are striving to do without labouring men, for fear that any of those labourers might meet with an accident while in their employment, and in fact be crippled for the rest of their days. It is a very serious thing for a small farmer of £50 valuation to have to pay £150 or more for a labouring man injured in his employment. They are endeavouring to carry on their business without the aid of hired labour, and this most militates against the employment of labour, and keep the farmer and labourer asunder.

1018. Surely it is not wise for the farmer, for the sake of a small premium, to undertake the serious financial risk to which you refer?—That is so. However, the farmers have their peculiar views on this question. The Agricultural Society initiated a scheme for the insurance of farmers against these risks, and the farmer had only to pay 3s. 6d. a year for his labourer, yet we found that the scheme was taken up so badly by the farmers that we had to abandon it. Now the farmers will have to pay the increased premium of 15s. per cent. on the wages bill.

1019. These two causes to which you refer as driving the farmer from the labourer have been laid up to by causes which were intended to improve the condition and to increase the independence of the labourer?—Yes.

1020. That is the spirit of the age, and is it not absolutely futile to rid against legislation based on those lines?—I must not be taken as talking against the legislation. I am merely stating what the effect of this legislation has, in my opinion, been.

1021. Do you think that anything has been done, and, if so, what, with regard to increasing the yield of milk from the cows that are at present kept?—Not

very much—not nearly as much as ought to be done. It ought to be a thing that was so obvious to the farmer that he ought to have done it on his own initiative.

1022. Will you tell us the best method of ascertaining that purpose?—I am only speaking of the creamery context. In each of these centres there ought to be set up a cow-testing association, comprising all the people who supply milk to the creamery. Each of these men ought to take steps to have the milk produced by each of his cows weighed, and at certain intervals have samples of the milk tested to ascertain what the percentage of butter fat was. They would thus be able to tell at the end of a certain period which cow was paying and which was not. I have known of a herd where the cows were producing 450 gallons of milk per cow per year which now give 600 gallons, simply because they have eliminated the bad milkers and retained the good milkers. In time they will breed from the best milking strains they have. I ought to say here that we cannot possibly disregard the question of best production in this country. It is very important. We hope the Department may enable us to devise some scheme, or to devote it themselves, whereby we can retain, to a certain extent of all events, the best qualities of our cattle, and improve their milking qualities something approximating to the cows in countries competing with us. In Denmark the average milk production of cows is nearer to 1,000 gallons than to 450. It is about 800 or 900 gallons a cow on the average, and in a number of cases they have got herds which average over 1,000. In America it is far greater.

1023. Mr. O'Brian.—Is that from your own personal knowledge?—No. I rely on the literature.

1024. The CHAIRMAN.—There is a certain amount of scepticism of everything that comes from the American Press, and one does prefer to have actual knowledge of what is accomplished. Do you know what particular breed of cattle they keep in Denmark? They have Holstein cows and the Danish red and the Ayrshire. They breed more for milk than for beef. I may tell the Commission that the other day in Co. Cavan, at a creamery where they had a milk-testing association, one of the farmers told me that he had made up his returns for the previous year, and he found that one cow had returned him £12 for the milk sent to the creamery and another only £5. He said that only for the testing association he would not know which made the £12 and which the £5.

1025. Except by the process of elimination, have you any more definite suggestion to make as to how the milk-producing quality of the cow can be increased?—I know of no other means, because while I believe you can starve a cow below her normal production, you cannot feed her much beyond it. You may increase the milk flow, but not add to the fat. You can improve the quantity but not the quality.

1026. You don't believe that the quality can be improved?—That is my opinion.

1027. Mr. CARMICHAEL.—The question, I think, was do you think you can increase the yield of milk in any other way except by these cow-testing associations?—I don't think you can.

1028. What I think the Chairman expected was that you should give the cattle better feeding?—Yes, if they were underfed.

1029. If you were to give some of your herds grain you would improve the quantity?—Yes.

1030. It cannot be said that dairy cows are properly fed?—No.

1031. If they were better fed in the winter time with root crops they would yield more pure milk?—Yes, I think that is true.

1032. Sir JOHN LESTER.—What is the winter dairy cow in Denmark fed on generally?—On roots and a certain amount of hay, lin, pollard and maize. They take advantage of their free trade policy to get stuff in cheap.

1033. Miss McNEIL.—You spoke a little while ago about insufficient labour for one reason or another?—Yes.

1034. Do you happen to know if the rate of wages in Ireland compares favourably with the rate in Denmark, having regard to the cost of living?—I have no figures to enable me to answer that question, but the information I gathered in Denmark was that the habits of the people were such as to enable them to live more comfortably, and that there a small wage would enable a family to live in greater comfort than in Ireland.

1035. The CHAIRMAN.—Do you believe that goat's milk is a useful substitute for cow's milk in a district where cow's milk is difficult to secure?—Yes, where ever the neighbours don't complain of the deprivations on their herds. I have heard that there is a goat evolved that won't eat hedges. Of course I think it would be of the very greatest benefit in a great number of districts if the keeping of goats could be increased, because their milk is very nutritious.

1036. Mr. O'Brian.—You have no personal knowledge?—Yes, I have used goat's milk to my son and it was excellent.

1037. You cannot tell us whether goats will milk better out on good grass or if kept indoors?—I am inclined to think that goats would be much better if allowed to roam abroad. The habit of the animal is voracious.

1038. I am thinking about the question of supplying milk to labourers. The labourers have now all practically got their area of land with their cottage, and that is partially unfilled, and should be almost entirely in tillage, but they generally have a corner where they tether a cow or beast that is not on the road. The question is whether it is more economic to keep a goat on a corner of the land, or utilize the land for crops and keep the goat indoors, because you will never get a good supply or quality of milk from a goat that is fed on papers or anything else they pick up along the roadside?—I am sure goats like a large area to roam over.

Prof. MERTON.—I know experimental goats, and I know it is one of the most difficult things to keep them on dry food, so I agree with Mr. Andersen.

1039. Lady EVERARD.—There was evidence from previous witnesses suggesting that all separated milk from creameries should be pasteurized?—It has been talked about, but no suggestion has been made that it should be done in connection with any of the creameries we have to do with.

1040. It is not done so far as you know?—No. It is compulsory in Denmark, with the idea of preventing the spread of tuberculosis in cattle. I think that where a farmer rears his calves on separated milk he cannot expect the calf to be as well nourished as if nourished on whole milk, or skim milk plus fatty substances.

1041. The CHAIRMAN.—Do farmers supplement the separated milk?—That is very largely done. One of the best things a good milk-liver oil. Crude and liver oil is, comparatively speaking, cheap.

1042. Regarding the conditions under which the cows are kept, do you think there is much need for improvement in reference to the way in which they are housed?—I do. I think the way the cows are kept is very important, and I would like, if the Press were not here, to speak very strongly on the subject. Speaking generally, the cows are housed in a most unsatisfactory way.

1043. That has been said from that chair already.—I say deliberately that the conditions are abominable in a great number of cases.

1044. You believe that an improvement is taking place?—Yes, and not only that, but the creameries themselves have done an enormous amount to improve the conditions under which the milk is produced. Creamery managers in nearly all cases exercise very strict supervision over milk coming in, and if the milk is sent in on an obviously bad condition they will reject it summarily. If they find it contains a lot of foreign substances in straining they report on that, and sometimes they watch the man very closely and reject it next time. In any case, the fact that a man knows that there is someone exercising supervision over his milk supply will have a very wholesome and deterrent effect.

1045. I am glad that we have brought that out—that there is a supervision at the creameries independent of that of the local authority?—Oh, yes. It is in their own interest, because you cannot expect to make good butter with impure milk.

1046. Lady EVERARD.—Is it your experience that in some districts the veterinary inspectors inspect very closely, and that in others there is no inspection at all?—Do you mean under the Dairies Order?

1047. Yes?—That was the evidence I gave, that in a number of cases the Order was enforced strictly, in others there was a laxity, and in others that the inspection was according to the whim of the inspector.

1048. Mr. O'Brian.—And he is influenced by the fact that he is related to all the farmers?—He may be.

1049. Mr. WILKINS.—I gather that your scheme for the supply of whole milk for the people in the creamery

districts turns upon the possibility of getting some voluntary organisation to work the scheme; you mentioned the United Irishwomen?—Well, I think it does, because the demand will not otherwise express itself.

1050. In any country district where there is a scarcity, the thing is to discover some individual or society who would be prepared to go to the trouble of organising the local demand—that is your opinion?—Yes. In fact, one can hardly recognise a demand as existing unless you have an organisation to express it.

1051. Your scheme rather turns on the existence of the voluntary organisation?—Yes. You must have the organised demand, and we will organise the supply.

1052. Has any scheme been suggested to your knowledge by which similar methods may be applied in the towns?—No.

1053. We have had a good deal of evidence given us with regard to tuberculosis and more particularly regarding the clinically tuberculous cow—is there any machinery in your society to get rid of her?—We have done nothing in that direction at all, so far.

1054. Sir JOHN LENTAGNE.—Would there be any objection or difficulty about pasteurising separated milk before it is sent back to the farmer?—None whatever. The great majority of the creameries are equipped with pasteurising machinery, and wherever it is there, there is no difficulty in pasteurising the skim milk.

1055. Mr. CAMERON.—Do you know what temperature they use for pasteurising?—Between 195 and 200 degrees Fehr. We find that temperature works very well.

1056. The CHAIRMAN.—What is your opinion of the pasteurised milk as an article of food as compared with unpasteurised milk?—I have heard it said that pasteurised milk is not so easily digested.

1057. Mr. CAMERON.—With regard to your scheme for supplying milk to the labourers where you would organise them to get it from the creamery, do you mean to say, if I am a farmer and employ three or four labourers, that I should send my milk to the creamery and have it sent back to my labourers?—The distribution from the creamery would work out all right when people are close to the creamery, but not in the case of people on the outside.

1058. Is it your system that I should send my milk to the creamery and send my labourers to get it there?—Yes. I am afraid that is unavoidable. The milk has got to be treated as any other commodity.

1059. The labourer may be the milk on the farm?—He would come in then under the household consumption, but the man on the next farm would have to go to the creamery.

1060. Mr. O'BRIEN.—Do you know if any of the creameries have appliances for skimming the tankards after they have received the milk and before putting in the separated milk?—Yes. A great many of them have the Swedish cow washer. That is quite common.

1061. Is it done by the creamery people?—Yes.

1062. Because this means to me to be important?—It is an advantage to the supplier, but not to the creamery.

1063. The cleaning of the cans would have the effect of improving on the people the necessity of cleanliness?—Yes.

1064. Dr. MOOREHEAD.—The separated milk is returned to the purchaser?—Yes.

1065. And it becomes the household article of diet?—It may or it may not.

1066. Mr. O'BRIEN.—Is there any organisation that you are aware of that looks after the transit of milk and butter in the train?—No. The Department does look after the transit of agricultural produce, and also after the sale of agricultural produce to a certain extent, but we don't do it. It is not our particular business.

1067. Would it not be the business of the co-operative dairy farmers to organise in reference to the milk in trains?—We have done so little of that business that it is not necessary to do anything in that direction. I have learned recently that some creameries in the South of Ireland have established a milk trade with England. I understand they still this milk and send it in ordinary railway chums.

1068. Does the railway company supply special cars?—No. There is not sufficient trade, and the haulage is so short.

1069. Would not sold cars for carrying our large butter supplies in the summer be a great advantage?—It would be an ideal arrangement, but I am of opinion that butter properly made, and allowed to cook sufficiently before going out, will not suffer in transit to any appreciable extent, and that the haulage is so short, and the carrying power of the railways so little that you would never get them to put on these vans, and that the volume of butter is not sufficient to justify an expending money on it. I don't deny that it would be very desirable that we should have it.

The Commission then adjourned to the 8th December, 1911.

FIFTH DAY.—FRIDAY, 8TH DECEMBER, 1911.

The Commissioners met at No. 5, Upper Castle Yard, Dublin.

Present:—P. J. O'NEILL, Esq. (Chairman); LADY EVERARD; MISS MARGARET McNEILL; Sir JOHN LENTAGNE, F.R.C.S.; GEORGE A. MOOREHEAD, Esq., F.R.C.S.I.; ALEC WILSON, Esq.; DERMOT O'BRIEN, Esq.; J. R. CAMPBELL, Esq., B.Sc.; Professor A. E. MITTAM, M.Sc., M.R.C.V.S.

S. W. STRANGE, Esq., Secretary.

1070. The CHAIRMAN.—Sir Charles Cameron desired to raise a point that he thought had not been sufficiently dealt with on the occasion of the sitting at which he was examined, and he made application that

he might be taken for a very brief period this morning for the purpose of amplifying the point he wishes to have brought out.

Sir CHARLES CAMERON, D.S., M.D., F.R.C.S.I., re-examined.

Sir CHARLES CAMERON.—I wish to say that in the newspaper reports—of course they are very brief—might appear, and did appear to some people, as if I said that no milk came from the country that was clean. I never meant or said anything of the kind, but a good many of my country friends think that is what I said. What I said was, that, on the whole, the milk coming from the city, being under supervision, was

purser, I believed, than milk from the country. At the same time, though I said that, I did not mean that of all the milk that came from the country. Of course, it is only now and then that a specimen of dirty milk came under my observation. There are many persons who import milk to Dublin who take care that the milk comes from a proper concern. I might say, too, that some of the inspectors of milk examine very carefully

the milk, and some of them sterilise it; for example, the dairy that is under the management of the Women's National Health Association sterilises all the milk that comes in from the country; they examine it very carefully, and they ascertain exactly from what kind of place the milk is coming in. The same remark, I may say, applies to the Lusk Dairy Company, who are very large importers of milk. They examine the milk very carefully, and if they find that the milk is unsatisfactory from any particular person, they discontinue taking the milk from that person. Besides that, they subject all the milk that they import from the country to pasteurising process, which, of course, would prevent any dubious results following the use of the milk, even if it previously contained micro-organisms of an objectionable character. Now, I know a good deal of excellent milk does come in from the country. What I meant the Dublin other day was that, comparing the Dublin milk with the country milk, there were fewer instances of milk containing filth in the case of the Dublin milk as compared with the country, and that on the whole the average quality of the Dublin milk, and more especially in winter, was better than the country milk.

1071. The CHAIRMAN.—Of course it is quite obvious that in considering the evidence given by the witnesses the gentlemen of the Press are confronted with a very difficult problem, and it is extremely difficult to get always quite, in the condensed form, the exact meaning that is conveyed to the Commission.

Sir CHARLES CAMERON.—It is especially difficult to drop into the speaker's forms of expression.

1072. The CHAIRMAN.—I quite agree; but I merely raise the point for the purpose of conveying to the outside public that it is not always easy for them to found their beliefs and convictions on summarised reports of the evidence given by witnesses representing such a wide interest as you have the honour to represent, Sir Charles.

Sir CHARLES CAMERON.—Quite right.

1073. The CHAIRMAN.—What you did convey, and what has been borne out by other witnesses, is that the supervision of the dairy yards and milk shops in Dublin is more rigorous and more complete than that which prevails in other districts of the country.

Sir CHARLES CAMERON.—If it were not the case that on the average the milk from the country is not quite so clean as the milk from the town, there would be no point in the evidence I and the others gave with regard to the supervision—the better supervision of the places from which the better milk is derived.

1074. Miss McNEILL.—You mentioned pasteurisation with regard to milk coming in from the country to our cities; it is not suggested that that would remove the difficulties due to dirt being present? It won't remove the dirt, and it won't make the milk more useful in that way?—Oh, no.

1075. Mr. CAMPBELL.—Sir Charles, the last day that you were before us we just touched on the question of the quality of the milk. I would like to ask you one or two questions upon it, as there has been a good deal of discussion in private circles on the subject. How far is the farmer in danger of prosecution for adding water to his milk when it is of poor quality but genuine. In the official regulations made under the Food and Drugs Acts, it is stated that, where the sample of milk contains less than 8 per cent. of milk fat it shall be presumed, until the contrary is proved, that the milk is not genuine by reason of the substitution of milk fat, or the addition thereto of water; and again, where the sample of milk contains 8·5 per cent. of milk solids other than fat it shall be presumed likewise?—Yes.

1076. Now do you think that these figures are too high, or that farmers are in danger of being falsely accused of selling impure milk because of that standard?—Well, that is a question that requires rather a long answer, I think. There is no doubt that the legal standard is far below the average standard of milk. The legal standard of 11½ per cent. of solids is one per cent. below the well-established average amount of solids in milk, namely 12·5 per cent.; but it may really occur that genuine milk will not contain that quantity of solids.

1077. Yes; well now?—I may say there are higher standards fixed in other countries, especially the United States.

1078. Well, how low would it require to fall before raising the presumption that water had been added?—If we go by the standard laid down by the Department of Agriculture, both in England and Ireland, if the solids that are non-fat fall below 8·5, that at once raises the presumption of added water; and if the fats fall below 8, it raises the presumption that either the skippings have not been added, or that water has been added, or that skimming has been resorted to.

1079. But if the percentage of the fats fell to, say, 7·8, and if the non-fat solids remained better than the standard, is it likely to be a case of added water?—I don't mind confessing I would not give a certificate generally, but I may also say that if I found the non-fat solids were considerably over not only the legal, but also over the average, standard, and the others were a little under, I certainly say there would be compensation given by the excess of the one for the loss of the other. The individual analyst should always exercise some discretion in the matter.

1080. But the non-fat solids, they are less?—The non-fat solids do not vary much, and if I were disposed to recommend any reduction in either the fatty or non-fat solids, it would be regarding the fats. I think they fluctuate very much more than the non-fat solids.

1081. But the farmer has a fair protection in the fact that the non-fat solids do not vary very much?—No, they vary very much. If they varied so much as in the fatty solids I should be inclined to think that would be a hardship.

1082. There is not so much danger of the farmer being accused of adding water to his milk if the non-fat solids are up to the standard?—From my own very extended experience, I would be disposed to say that a standard of 7·8 fatty solids would meet the case. I would certainly not reduce the standard for non-fat solids.

1083. I draw your attention to a series of experiments carried out at Leeds University, Yorkshire. The milk was sent in just as dairy milk is sent in in Dublin, and I had investigations carried out there for two years on these animals. This was an actual case.

Mr. O'BRIEN.—Was the milk taken about the same time?

Mr. CAMERON.—One at 6 a.m. and the other at 3 p.m. Now taking the mean of all the analyses during that period, the fat was only 7·75 in the morning, whereas it was 4·00 in the evening. However, the total non-fat solids were 8·60 and 8·61 respectively.

1084. Now, there is a case where the morning cows were distinctly superior?—Yes, the same as at Glanville a few years ago.

1085. Exactly, and it applies to nearly all the dairy-men round Dublin who milk at those very special periods. It was discovered by other experiments that it was entirely due to the irregularity of milking. Would that, in your judgment, raise a presumption that the milk was watered?—I may say that often experiments vary greatly from the Ayrshire Dairy experiments.

1086.7. But those at the Ayrshire Dairy use Ayrshire cattle?—Over 40,000 samples were taken, and in each case the non-fat solids were above the standard.

1088. Yes, but in the morning the fats were considerably below 14?—Yes.

1089. There was a second case where the percentage of fat in the morning and evening was 2·83 and 4·00 respectively, and there the non-fat solids were also above the standard?—It is very odd that the results should vary against almost universal experience. As against those experiments you could quote hundreds of cases on the other side. I see them published constantly.

1090. These experiments were carried out for three years, and with the same results?—They were carried out by two different owners, one was Smyth, another was Curran, one we have had in North Dublin.

1091. Mr. O'BRIEN.—I think when you are giving your evidence before, you said the time of milking was between 6 and 7 a.m.?—Yes.

1092.—And that in the afternoon it is 3 p.m., or 2 p.m.?—I think that is when most people milk.

1093. So that there is a longer period between the afternoon milking and the morning milking of the cows

in Dublin than in Leeds, and therefore we rather presume that the milk supply in the morning would show a lower percentage of fat?—Yes.

1094. Mr. CAMERON.—These experiments were designed to test that, and it was found that when the milking varied but little there was comparatively little difference, but as you made a change between periods the richer the milk was in the evening and the poorer the milk was in the morning?—Well, my experience is that when genuine milk falls below the legal standard it is more likely to arise from deficiency of the fats than from deficiency of the solids, and I think there is often genuine milk containing less than 3 per cent. of fat. I said so before this.

1095. Well, in the Leeds experiment you had milk taken for three years of a herd of twenty cows, where the milk was all genuine?—What kind of farm was it—an ordinary farm?

1096. Yes?—It is strange that these experiments should differ from thousands of analyses all over Europe.

1097. The fact is that the experiments that have been published were made on cattle that were milked at uniform periods. It is altogether abnormal to milk cows at two o'clock in the afternoon and five o'clock in the morning?—Well, you should get the best cattle for the particular purpose. I think it is no excuse that there should be a particular quality of cows and poor quality of pasture.

1098. But you have got to use the cows of the country?—But you can supplement their feeding.

1099. But these were well fed?—You see, the danger of fixing a low standard is that the tendency will be to have always a lower standard.

1100. Mr. CAMERON.—But, fortunately, we always have the non-fatty solids as a safeguard?—But I do think something ought to be done so that the great excess of one class of constituents in the milk should compensate for some deficiency in the other. I do believe genuine milk is often deficient in fats, and often has a great excess of non-fatty solids. I have found that. I have found a great excess of fats. I think I mentioned the other day milk containing over 18 per cent. of solids, yet, if I went by the standard laid down, I would have to certify there was 94 per cent. of water in it.

1101. The CHAIRMAN.—That is exactly what you wish to convey.

Mr. CAMERON.—The point is, that there may be danger, and I know perfectly well that there are many farmers who fear to be put in a false position through no fault of their own. I know one gentleman in Co. Dublin who would like to go into the milk trade, but he would not like to be put in a false position of having it said that he had added water to his milk. It is really from that point of view I would like it discussed.—If the standards are well up to the standard, it is not likely the farmer will run serious risk of being prosecuted for adding water, even if the fats are really under 3 per cent. I will mention a case of milk sent to Drogheda Union. It was very often examined by me, and very often found to be adulterated according to standard—very often; and they then fixed a standard of quality for the milk, but they fixed it at just one per cent. higher with regard to total solids, and one-half per cent. with regard to each of the other two, the fats and the non-fatty solids. I have been told by the persons who contracted for the milk—they actually came up and explained matters—that they found with their ordinary cows they could not get up to the standard, and they had to get Jersey and Alderney cows, whose milk was very rich, to make up for the deficiency of the other cows.

1102. Mr. O'BRIEN.—In that case were the cows milked at the same sort of hours?—I suppose the usual time in the morning—they are pretty early in the morning.

1103. Have you had any experience with cows that are milked three times in the day?—No.

1104. Did you have any experiments?—

Mr. CAMERON.—Not in this country. It tends to uniformity in the milk. The trouble only arises in the cities, where people ask to have their milk delivered at 4 or 5 o'clock in the evening. Farmers are compelled to milk their cows at an unusual hour, and then in some cases the milk falls below 3 p.m. In Glas-

gow we have the milk analysed every day, and we find a marked variation in the results between the morning and the evening milk.

Sir CHARLES CAMERON.—Do you find any difficulty in the case of solids?

1105. Mr. CAMERON.—No; and I wanted to get from you, would it not be wise to lay more stress on non-fatty solids than on fat?—Yes, my experience of genuine milk is that the non-fatty solids never fail. In fact, as a rule they don't fall below the average quality of 9 per cent., but the fats very often do. The Glasgow experiments showed that, especially in the case of the cows giving the evening milk. Of course, one has to take into consideration that sometimes the dairy stock is a very small one, whilst if there are a large number of cows it is extremely improbable that they will all be poor. The rich milk of some would be more than the standard and others low, but the average quality would be up to the standard, as a rule, in the herd. A great many people have but two or three cows, and they may be of poor quality.

1106. The CHAIRMAN.—And no consequence would be taken, if a prosecution were instituted, by a presiding authority as to the extent of the herd, whether it consisted of 3 or 30 or 50 cows. So that if, in a small herd of 3 or 5 cows, the owner was unfortunate enough to have two yielding poor milk, and if their milk was sampled and analysed, in all probability he might be fined as a person who was adulterating milk?—He might. I have known instances of the milk of a single cow not turning out satisfactory.

1107. I really think that is a hardship, and that some effort ought to be made to deal with it, because obviously a condition of that kind most necessarily restricts the sale of milk?—I frequently criticise my own judgment in certifying for articles supposed to be adulterated. For example, in many cases where I find a very large amount of non-fatty solids and a very small amount, comparatively, of fats, and where the total solids often go up to 18 per cent., which is higher than the average quantity found in genuine milk, I never give a certificate in such cases, though I might do so.

1108. I quite understand that, but I would like to point out that although that has been your practice, the position you yourself occupy enables you to deal with this matter on your own judgment, whereas a junior practitioner, or one less sure of his position, might hesitate to do what you feel justified in doing?—Yes, that shows the importance of appointing experienced persons.

1109. I admit that, but at the same time it is not possible?—You must begin sometime or other.

1110. Always to find people with the amount of experience you have had; so that I think it is a matter of extreme necessity that some effort should be made to revise the conditions under which milk is standardised, which will safeguard the public health and the public interest, without imposing restrictions on producers that must increase the cost of the commodity or restrict the number of those who are engaged in the trade?—Certainly.

1111. Mr. WILSON.—I heard it suggested that a possible way out of the difficulty of the standard would be that no prosecution should lie unless it was made from a mixed sample of the morning and evening milk taken on the same day?—Milk so mixed is not on sale.

1112. Would that help to solve the difficulties?—It does not meet a state of affairs which actually exists. Milk-sellers don't keep over the morning milk in order to mix it with the evening milk, and keep the evening milk to mix with next morning's milk.

1113. No; but the suggestion is to take a sample from the street, the sample on which you prosecute?—Oh, yes, in the street.

1114. To take a sample from a man in the morning and from the same man in the evening?—Well, I do that.

1115. I don't think you quite understand my point; it is proposed that the inspecting officer should take from the dairyman a sample in the morning and a sample in the evening, mix them together, and prosecute only when the joint sample proved to be below standard?—Yes.

1116. Would it be feasible?—It should be feasible.

1117. Reasonable?—Fair enough.

1118. Mr. CAMERON.—But a difficulty arises in the case of a person selling in a shop. It does not follow that the dairyman delivers milk there twice a day.

The CHAIRMAN.—I am diffident; the cowkeeper doesn't necessarily supply the same customers morning and evening?—Not necessarily, but as a rule they do.

1119. Where large quantities are used, sometimes there is only one delivery in the day, and if that happened to be a morning sample, and if that was considerably below the standard, there would be no opportunity of equalising matters by testing a sample of the mixed morning and evening milk?—Well, where there is only one delivery, I suppose it must include the morning and evening milk.

1120. Not necessarily; because customers might be supplied at different periods of the day by the same producer?—Would not that be with the milk of the one milking?

1121. What I suggest is this, that it is possible, I don't say probable, that the milk purveyor may deliver milk in one district in the morning and in another in the evening?—Yes, that may be; I don't think it is usual.

1122. Is it possible?—It is possible.

The CHAIRMAN.—And it would create a difficulty if Mr. Wilson's suggestion was carried into effect.

1123. Mr. O'BRIEN.—Is it not a fact, so far as you know, that about three-fourths of the dairy herds supplying milk for consumption are not aged cows, and that on the whole the dairymen favour cows which are 7 or 8 or 9 years old, thinking they give a larger supply though of poorer quality, seeing that they sell the milk by bulk and not by test of butter fat?—My experience at the Model Farm was that the older cows gave the best milk, and with richest quality. That was my experience of a great number of samples.

1124. My experience in Limerick is that they always choose to have a certain percentage of old cows, cows that are supposed to give a larger quantity of milk; this was before the establishment of dairies, and they did not mind the quality so long as they got the quantity.

Mr. CAMPBELL.—Sir Charles says that the older cows at Glasnevin gave the better milk, but he did not say they were very old.

Sir CHARLES CAMERON.—Oh, they were elderly.

1125. Mr. CAMPBELL.—Not very old. As a matter of fact, there are young cows and older cows, and I am quite sure that what Sir Charles Cameron said about the old cows is right. We don't have very old cows?—Oh, no.

1126. Mr. O'BRIEN.—I know from practical experience that when a cow has got a bit old in the country, say 10 or 12 years old, she is sold to people in the town because she will have a pretty large supply of milk. The people buy these cows especially for the winter milk, with the idea that they will kill them off in the spring, and therefore you will get a large supply of milk in many towns from cows that are almost in their last days. That may lead to a lower standard of milk. I don't know if that is so about Dublin. Would you say so?

The CHAIRMAN.—I am rather inclined to think the Dublin cowkeepers like to buy cows with plenty of vigour, especially those which would be good producers. Of course, they always endeavour to select cows with very free conformation. There are other characteristics, independent of age, which they believe indicate good milk producers. They don't like only first-year cows, cows that as a rule yield a limited supply. I mean they don't buy heifers.

Witness.—From inquiries I made in England, I found that what is done in town dairies—I don't know about the country dairies—is that they buy cows and keep them in the cowhouse, summer and winter, until they begin to fall off in the quantity of the milk, without regard to whether the milk increased in quality. When they begin to give unsatisfactory quantities of milk they are disposed of at once.

1127. Mr. CAMPBELL.—In calculating the percentage of added water, do you take the total solids?—No; no matter what the total solids are, it is calculated on the 85 per cent. of non-fat solids, not on the total solids.

1128. The water is always calculated on the non-fat solids?—Yes; no matter what the quantity of fat may be. So that if what I say—that there may be an extremely rich milk, containing 13 and 14 per cent. of solids, but if deficient in non-fat solids it would be regarded as adulterated, or at least such presumption would be raised. For the reason I have already given, I never in a case of that kind give a certificate, because I think the purchaser gets, in fact, better value than he expected. But it is my own individual action, and non-legal action.

1129. Do you think that the analysts have a uniform system in estimating the percentage of water?—There are different methods of stating that fact. I have a peculiar method of stating the amount of water added. It differs from the English—Somerset House—method. I state what is the amount of water added to the milk; that is, if a gallon of water is added—to take an extreme case—if a gallon of water were added to a gallon of milk, I say that that was milk to which 100 per cent. of its weight of water had been added, making 200 parts out of 100. But in the usual form of certificate given in England by the Government chemist, it would state that the milk contained 50 per cent. of added water.

1130. The CHAIRMAN.—I am quite familiar with the different phrases?—There are different ways of stating the same thing. I think mine is the more logical way. The offense consists of adding something that was not in the milk originally. When I say you add 100 per cent. to the milk, that shows what it really consists of; when I say 100 per cent. was added, you have a better idea of the nature of the adulteration than by putting it the other way. I have had people calling on me to know how butterfat could be adulterated with 100 per cent. of water. A great scholastic man called on me, not very long ago, to know how could an article be adulterated with 100 per cent. I say you may get 10,000 per cent. interest for your money. If you give £1 and get £2, you are getting 200 per cent.; and by adding 200 parts of water to 100 parts of milk you are adulterating it with 200 per cent. of water.

1131. Mr. CAMPBELL.—There is another way of stating it, by saying that it is deficient in fat by a certain per cent?—Yes.

1132. Or deficient in solids?—Both, sometimes.

1133. That would be a less offensive form to a gentleman who is a little tender in his feelings?—It would.

1134. Suppose you stated that this milk is deficient by so much per cent. of solids, so much per cent. of fat?—We never say the solids.

1135. Panel?—Yes; supposing the milk is deficient 2·5 per cent. of fat, then the form of certificate would be that the milk had been deprived of 50 per cent. of its fat.

1136. Therefore, would it not be possible to say it contained 50 per cent. less than the standard?—It could be put in that way.

1137. Don't you think that that would be a nicer way?—Yes, it would be a nicer way of putting it. It would not hurt their feelings so much.

1138. A gentleman from Woodford I saw the other day was accused in the court of adulterating his milk with water. I do not think he would have felt so sore if it had been put the way I suggest—deficient in a certain per cent. of its fat?—I assure you it always gave me great pain to have to give a certificate of adulteration. I know some people think we rejoice when we have to discover faults of that kind. We don't.

1139. I speak after having conversations with several persons, that to say that milk is deficient in fat is a totally different thing to saying it contained 50 per cent. of added water?—There are nice ways of doing unpleasant things. I heard of a judge who sentenced a prisoner to six months in prison in such a way that the prisoner thought as little of it as if he had been let free by another kind of judge.

1140. I am very much obliged to you.—I would be disposed to think 2·5 per cent. of fat would not be unreasonable.

1141. But to stick to the standard for non-fat?—Yes, and to the total solids. And I do say that it may be well worth while considering whether allowance should be made if there were a great excess of fat, because sometimes I have found it a very great difficulty to decide whether there is more than the average quantity, to say nothing of the total quantity, while yet there is a deficiency of the non-fat solids. I would press that rather upon your attention.

1142. The CHAIRMAN.—And this might be due to a circumstance over which the purveyor or producer of milk has absolutely no control?—Absolutely no control; it would look that the milk was pure if it contained a large excess of one class of constituents though there might be a deficiency none or less in the other class. Really I would like you to take that matter into consideration.

1145. Dr. MOOREHEAD.—Would not 28 of fat be a very low standard of fat, seeing that fat is the principal constituent?—Milk is less likely to be adulterated when it contains 28 per cent. of fat than if it contains only 8.0 per cent. of non-fat solids. 2.8 per cent. is a low standard, of course.

1146. Mr. CAMPBELL.—But the fat is a variable factor?—Yes. I think some allowance should be made with regard to the fat, provided the total solids were up to 11.5.

1147. You would not take the non-fat solids alone?—No.

1148. You prefer the total?—Yes, the total solids.

1149. Dr. MOOREHEAD.—Some of the books put the total solids at 12.0?—I should say that milk should contain 11.5 per cent. of total solids.

1150. Minimum?—Yes, and if the fat came to 28, but the total solids were up to 11.5, I would not give a certificate.

1151. Mr. CAMPBELL.—There would be no prosecution?—No prosecution.

1152. But you would not consider it very good milk?—I would not. I would like to get better milk myself.

1153. It might be due to the cow?—Yes.

1154. Dr. MOOREHEAD.—Do you regard the tuberculin test as absolutely accurate as applied to cows?—I have heard of cases where it was not; it is brought about rather in this way, that inflammatory symptoms set in on the application of the test. I have read of this; it is, of course, more a matter for the veterinary surgeon. I have heard of a case in which the application of the test set up some inflammatory action. However, I am speaking only of what I have read.

1155. Prof. MERRIAM.—You didn't make a post-mortem?—No.

1156. Dr. MOOREHEAD.—From a health point of view, what would you think of the milk of an animal that did re-act, but which did not show diffuse tuberculosis, or tuberculosis of the udder, and which was otherwise healthy?—I would be inclined, if it were my own cow, not to use the milk, but really I think my answer should not be taken as being worth very much.

1157. From the scientific point of view, would there be any possibility of rendering that cow immune by further inoculation by tuberculin?—I think you ought to ask the veterinary surgeon.

1158. Mr. CAMPBELL.—You were for many years lecturer at Glasnevin?—Yes, for twenty-five years.

1159. And during that time you saw the cows?—Yes.

1160. Your colleague, Dr. McWerney, told us that he tested them, and he found that about 40 or 50 per cent. re-acted? You don't think, notwithstanding that, that there was any danger in the milk?—I do not.

1161. Prof. MERRIAM.—In other words, a cow might re-act to tuberculin, and still the milk might be wholesome?—I would not condemn the process of a cow if there were some slight affection of the lungs.

1162. And a cow may re-act to tuberculin and still the milk may be wholesome?—Of course. I think sometimes the introduction of any material into the circulation produces inflammatory disturbances; a rise in temperature may be caused, even by water.

1163. Distilled water?—Distilled water.

1164. Dr. MOOREHEAD.—I would like to get information about the Widal test?—I agree with Professor McWerney, it is a most important question. I quite agree with what he said. In fact, I proposed that myself, and published it a long time ago. It would be a most desirable thing to apply the test to those engaged in milking cows and vending milk, and it is such a simple thing.

1165. Is every person who re-acts to the Widal test a carrier of typhoid?—Yes, the chances are that he is.

1166. What about soldiers who were inoculated with a properly prepared serum, say Professor Wright's?—That might prevent a man developing at himself, but as long as he is a carrier of the micro-organisms he is a danger.

1167. Does he re-act to the Widal test?—Yes, even if inoculated with the anti-toxin. He ought not to deal with milk. Several cases come under my own observation in regard to typhoid carriers, and I think they are real carriers of society. There are not only typhoid and dysentery carriers, but from some investigations I have been making recently, I think there may even be typhus carriers.

1168. Would a person re-act to a para-typhoid?—Yes.

1169. Mr. Wilson.—Dr. McWerney suggested that according to the latest evidence 5 per cent. of patients affected with typhoid probably become carriers of the disease afterwards?—Yes.

1170. He was not able to give us any figures at the time about the incidence of typhoid among the population. Roughly, what is the figure per thousand?—Well, take Dublin, which at one time had, with one exception, the highest enteric fever death rate; some years ago there were some 200 deaths in a population of about 300,000, and it had sunk down to 40 deaths two or three years ago, while last year it is only 32. Well, even if you take 50 deaths in a population of 300,000, and multiply that 50 by 10, you get the total number of cases of enteric fever, because the mortality in enteric fever is about one in 10—every tenth person attacked by it dies.

1171. Then you say there are about 500 cases of enteric fever in Dublin in a year in a population of 300,000?—Yes; that is what it has gone to with a death roll of 50 in Dublin.

1172. Professor McWerney's figure was that about 5 per cent. of these cases become typhoid carriers; that is to say, there are about 20 individuals, more or less, who become carriers every year?—We can't get correct statistics. You would have to examine the whole of the people who had enteric fever for a year and see.

1173. On the available evidence it is suggested that there are yearly about 20 people in Dublin who under this test would be forbidden to take any part in the dairy trade?—Yes.

1174. The CHAIRMAN.—That is, you bring it out, in fact, that a very small percentage of the population might find their employment interfered with?—It would not be an unreasonable condition to put on people vending and engaged in the production of milk to have them subjected to this test, in view of the fact that so few of them are affected.

1175. If recommendations were made in regard to it, and it was suggested we were going to interfere with the occupation of a number of men engaged in the milk industry, probably public opinion would hardly support us; but in view of the fact that as there is such a very limited percentage, not one individual of these engaged in the milk trade might have his occupation interfered with. I submit it is not an unreasonable proposition to make?—My idea is that it would not be, especially as the chance would be remote of one of the 40 people being affected. According to the doctrine of probabilities it would be a very small chance, but I would like to say this for a moment, that in the very limited number of cases in which I had this test applied, in the cases of dairy people they showed no disinclination to submit to it. There was no hesitation whatever about it, no complaint about it. It is practically a painless operation.

1176. Prof. MERRIAM.—It is not a formidable thing at all?—No.

1177. Dr. MOOREHEAD.—Do you hold that if a man re-acts to the Widal test after three months he is, therefore, a carrier all his life?—Not all his life.

1178. But he may carry these germs all his life?—No, because the most of what we know is derived from the military surgeons—it is they, in fact, that worked up this; he may hold the germs for six or seven years.

1179. Prof. MERRIAM.—To put it technically, so long as a man carries in his blood immune bodies to typhoid he will re-act to the Widal test?—He does.

That is quite apart from the fact whether he has been passing typhoid bacilli. A person receiving will re-act for a certain length of time; his re-action gradually disappears, till it disappears altogether. A person, therefore, who is suffering from typhoid in a latent or active condition will re-act, and those persons who have been inoculated by Wright's vaccine will also re-act, but that disappears eventually.

1180. Sir JOHN LESTER.—The carrier will always re-act; other people who may not be carriers will re-act too?—Yes.

1181. Dr. MOOREHEAD.—Does the person who re-acts always excrete typhoid bacilli?

Sir JOHN LESTER.—No.

Dr. MOOREHEAD.—He might not be dangerous though he re-acts.

Prof. MERRIAM.—He may not be dangerous to-day, and he might be to-morrow.

Dr. MOOREHEAD.—He may excrete the bacilli to-day and not to-morrow?

Prof. MERRIAM.—Yes.

MR. ANDREW WATSON, M.A.C.V.S., examined.

1180. The CHAIRMAN.—You are a qualified veterinary surgeon, and at present hold an appointment under the Dublin Corporation?—Yes.

1181. As Veterinary Inspector?—Yes.

1182. How many years have you been in that position?—Twelve years.

1183. And you have under you certain officers to assist you in carrying out the duties appertaining to your office?—Yes.

1184. Are they professional or non-professional gentlemen?—Non-professional.

1185. Are they subjected to any examination in order to test their qualifications to carry out the duties entrusted to them?—Yes; they pass the examination of the Sanitary Institute or Royal Institute of Public Health.

1186. That is not regarded as requiring scientific knowledge of disease, or the conditions under which diseases are generated?—It implies that to a minor extent, and it is recognised as a standard examination by the Local Government Board.

1187. Have you experienced any difficulty in the performance of your duties owing to the fact that those who are engaged with you were not qualified professional men?—Well, they increase my labours very frequently by being slow to take action. They don't know whether they should allow certain things, whereas if they were all professional men they would be able to take initiative action.

1188. What I wanted to elicit from you was, is the administration of these Orders as efficient when carried out by a non-professional man as they would be if carried out by professional men?—You would naturally expect me to back up the professional man, but I must certainly say that the staff behave wonderfully well; they are fairly efficient. Of course, they have many years' experience under Sir Charles Cameron and myself.

1189. You will quite understand I am not making any reflection on them?—I understand that.

1190. I merely wish to elicit what the nature of the assistance given you is?—I don't think that I have any reason for fault-finding, although they are laymen, but then they have a number of years' experience.

1191. I quite understand, and I take it that your view is that the public safety and the public health are not in any way impaired because of their not being professional men, provided they have a professional man to consult and render with?—That is perfectly correct.

1192. The number of cows in your area, I believe, has decreased in recent years?—Yes, it is a fluctuating number, and it is decreasing.

1193. Would you be able to tell me the number of dairy herds that exist in Dublin under the municipal authority. Of course, you won't include the townships in that?—No. That means the extended boundaries of the city. The number of dairy herds in the city is 236.

1194. And the number of cows?—The number of cows is 6,241.

1195. And the number of shops?—The number of shops and dairies is 543.

1196. Could you also give figures showing the number of purveyors of milk residing within the city? I understand you refer in your draft statement to those who send in milk by road or rail?—Yes, 96.

1197. What means have you now of ascertaining that number; are they obliged to register?—Yes, all vendors of milk in the city are supposed to register. The means we take to make certain that they are registered are these: there are certain main roads or arteries coming into the city, and at certain periods of the year we put inspectors out on the bridges, and anyone whom we know is not registered is taken to book, if they are selling milk. We prosecute them for not being registered.

1198. Is the penalty severe?—No; generally a nominal penalty of 5/-.

1199. Is it sufficient to ensure that the purveyors of milk will register in all cases?—I don't think so. The magistrates take a very lenient view of many cases of that description. I think if they enforced a higher penalty it would tend to the better carrying out of those Orders.

1200. All vendors of milk are required to be registered somewhere; would you be in favour of extending the registration to licensees?—I should be very strongly in favour of that.

1201. Would you kindly give the reasons?—The license has a personal claim. Registration is more general and is not such a personal matter. I think I may say that in a great number of instances, even in the city of Dublin, the wrong men are handling milk, and I think if we had the power to license and to take into consideration the character of the person licensed, a number of them would not be licensed. In dealing with an article like milk it is of the greatest possible importance that a system of licensing should be adopted. I think a licence to deal in milk and meat and such important articles of diet is very essential.

1202. How far do you think the change you suggest would limit the numbers of those who are engaged in the trade?—Well, roughly speaking, I suppose it would eliminate 25 per cent. of those who are at present registered; of course, that is very roughly.

1203. I want it generally, an approximate answer; I can't expect a definite answer from you. With regard to the conditions of licensing, if it should be established, what conditions would you lay down?—I think that the man should be a good class of citizen.

1204. In the first instance you deal with the individuals applying for the licence?—Yes, exactly.

1205. If his physical condition and training (if he had any) did not suggest that he was likely to be a careful and intelligent purveyor in the trade, you would refuse a licence?—I would, and in granting a licence, his social condition ought to be taken into consideration, because I think that a man who is socially below par, or whose associates are, and who is known to associate with dirty people, such a man should not be licensed.

1206. Of course, it is rather a well-known fact that a liberal percentage of those engaged in the trade have undoubtedly commenced their commercial pursuits in a very small way?—Not so much nowadays. That fact obtained some fifteen or twenty years ago. There are a number of people getting into the trade now who have not begun on the lower range of the ladder, but have come into it altogether from outside; so that there is a tendency, a very considerable tendency, towards the improvement of the social condition of the modern dairymen.

1207. Is it not a fact that numbers of industrious men who have been following the pursuit, say, of skeddies with shipping companies, men who have been engaged as carriers with large carrying companies, and others of that type, have embarked in the dairy business in a small way at the beginning?—That is true, but compared with the number connected with the trade, I think the percentage is comparatively small. It is true that the thing has obtained exactly as you say.

1208. What I want to get from you is this: do you think that the trade is now in more restricted hands, that the number of those who are purveying milk is reduced, although the output of the milk is not reduced. I mean that those engaged in the business are keeping larger herds?—No, on the contrary. I suppose, compared with thirty years ago, the size of herds in Dublin is enormously reduced. When I began my profession, the number of dairymen in Dublin who kept up to 150 head of cattle, milch cows, was very considerable. Now, I suppose one-fourth would represent the number, and for the majority of men the number of cows is 40, 50, and 60. Twenty-five years ago, 100 and 150 cows used to be kept.

1209. Neither was it uncommon to find a considerable number of people keeping below 20 cows?—Oh, yes.

1210. Even now?—Even now.

1211. Do you think that the number of people engaged in the trade with small herds in Dublin is diminishing or increasing?—Increasing.

1212. You have given us your view in the first instance with regard to the applicant; now what other condition would you impose with regard to the premises in which the cows would be kept?—I think the premises ought to be registered.

1213. Registered or licensed; would you extend the licence to the individual or premises?—The licence should apply to the individual and registration to the premises. I think we ought to have power to refuse registration until we are perfectly satisfied that the shops and the yards and the surroundings of such establishments are fit and proper for the establishment of a dairy yard. At present we have no such power.

1234. I take it that not alone would you impose that condition, but you would also insist that the premises should not be in close proximity to other establishments wherein certain trades are carried on?—That is so. That is undoubtedly important. We ought to have the power to object to the site of any dairy yard which would be unsuitable, owing to the surroundings, for the storage or production of milk.

1235. How often, in the pursuit of your duties, speaking generally, have you found it necessary to condemn the conditions under which cows are housed and kept?—A number of times I have objected to the site of the yard.

1236. You told me you have no authority to interfere with the site. What I want to get from you is, what have you been able to accomplish under the powers actually conferred upon you to secure better housing and keeping of the cows?—Under our powers we have increased the ventilation and the lighting, and the cubic space of cowsheds, and although we have really no legal power, we go so far as to make a provision for the surface of the dairy yard.

1237. That it shall be kept in a clean condition?—As far as possible we regulate the surface by requiring asphalt, or some such substance, to be put down, so that the excreta should not get down to the soil.

1238. Do you find that owners readily conform to the conditions you impose?—It depends on our request; if our requests indicate that there is going to be an expenditure of a large sum of money, of course they readily protest.

1239. That is human nature?—I agree with you. But eventually, people obey our directions for the arrangement of dairy yards; they finish up usually by being a consenting party.

1240. I want to get a general view; do you find those people obdurate in resisting any attempt made to improve the conditions under which milk is produced?—No, I don't. On the contrary, take them all round, they are very good citizens in that respect.

1241. You can say they are a reasonable body of men?—They are, certainly.

1242. Now, with regard to the condition and the health of the cows, do you often examine the udders of the beasts?—I get round as many as I can every year. My duties are not restricted to the duties consequent on the Dairies and Cowsheds and Milk Scales (Ireland) Order; I have also duties under the Diseases of Animals Act for the City of Dublin, and have to inspect slaughter-houses and meat, under Sir Charles Cameron.

1243. What system do you follow with regard to the examination of the dairy herds of Dublin for the purpose of ascertaining how far these animals are producing milk from bags that are sound clinically?—I make my inspection to irregular parts of the whole district. I take no special line. I take the north, south, west, east, and consequently, by taking it that way, it gives me a very good idea of the general condition of the dairy yards.

1244. Speaking generally, what has been the result of these examinations?—I must certainly say that since we began that there has been a great improvement.

1245. The number of suspicious or affected cows has been diminished?—Yes; and I am now speaking generally of diseases of the udder, mastitis, tuberculosis of the udder, and what is known in dairy yard boys' parlance as milk boils.

1246. You mean a slight abscess?—Yes, small abscesses either of the udder or the teat of the udder. During the last ten years the number of these has been diminished very materially, and it is because—at least I can vain enough to give myself a little credit for it—I have instructed them that the various forms of disease of the udder are largely a matter of inoculation, and that they should not milk a cow with any of these diseases, and go from one to the other. I have always told them that that is inoculating the other cow, and as far as possible I have all cows suffering from any of these diseases put by themselves, and left to the very last to be milked.

1247. I have no doubt that you were talking to men who were prejudiced against this belief when you stated your theory with regard to this matter?—Not alone were they prejudiced against it, but they thought I was meddling them, and up to the present day there are a number of big owners who, in spite of all I say, attribute these boils to the hot wash and the grains. They refuse to believe it is the result of inoculation from micro-organisms.

1225. What number of cows, or what percentage, do you think you have discovered by these examinations suffering from tubercular udders?—Suspected cases?

1226. Suspected or proved?—I prefer to say suspected, for reasons that will perhaps transpire later on. I should think there is not more than 4 per cent. Certainly there would not be more than 2 per cent.

1227. Mr. CAMPBELL.—Are you referring to clinically affected udders?—Yes, clinically affected udders.

1228. The CHAIRMAN.—When your suspicion is aroused, what course do you follow?—The course I adopt when I suspect an udder is to take a sample of the secretion, and having taken the sample, I hand it in to Sir Charles Cameron's laboratory and await results.

1229. Which are sent to you?—Within various times.

1230. But, at all events, sufficiently rapidly to enable you to deal with the cows under suspicion?—If the results don't come soon, I have to go to the laboratory and kick up a row myself.

1231. Suppose you discover a case which the bacteriological examination confirms, not merely a case of suspicion, but one of actual disease, what course do you follow then?—I write a certificate recommending the Public Health Committee to have such an animal slaughtered.

1232. And compensation paid to the owner of the beast?—Yes, compensation paid.

1233. I understand that the compensation paid is limited to £10?—That is so; it has been the subject of dispute.

1234. Do you think, speaking generally again, that the limit affords a reasonable safeguard to the property of the cowkeeper?—No, I do not, nor for the public health interests. I think it ought to be bigger and ought to be more generous.

1235. I put this question to another witness; I don't mind repeating it: Does the fact that you are limited by law to assess the compensation to the owner at £10 make you hesitate in condemning to slaughter an animal which, if you were permitted to give its full value, you would not hesitate to slaughter?—I would very much prefer, if I had the power, to give full compensation, and I would deal very much more quickly in doubtful cases; but that is not the point that interferes with my present action.

1236. What is it?—The point is this: I must have a bacteriologist's certificate that he has found tubercle bacilli present in the sample I have submitted.

1237. Before you can order slaughter?—The tubercle bacilli must be certified to be present.

1238. Sir JOHN LESTER.—You don't meet with other bacilli?—I depend upon the bacteriologist's certificate that the bacillus has been found in the suspected animal; for under the Dairies and Cowsheds Order we are protected by no such clause as we are under the Diseases of Animals Act, which says, in dealing with any of the other scheduled diseases, that the veterinary surgeon's certificate shall be final and binding. The difficulty and danger that arise in dealing with suspected tubercular disease of the udder is, that if we don't make it certain that the bacillus is present, and we condemn such an animal as suffering from what we think to be tubercular mastitis, and if upon slaughter it is found to be mastitis, but not tubercular mastitis, then the question of remuneration comes, for I, as the representative of the Corporation, would be liable to an action, and the Corporation might be molested in damages.

1239. For having them wrongly slaughtered?—Yes. Even if it was clear that an animal had the symptoms that would support our suspicion, and that then upon post-mortem it was found to be mastitis but not tubercular, an action would lie.

1240. The CHAIRMAN.—We all know that the post-mortem examination does not always reveal the conditions that the symptoms seem to indicate?—In dealing with any disease of the udder it is easy to see mastitis, but to say definitely that it is tubercular mastitis is a very difficult thing.

1241. If this power were conferred, you think you would be able to make more efficient disposition of these animals?—I do. I think, moreover, that the veterinary inspector ought to be protected by law if he does take up a case of mastitis; he is more or less justified even so to remove such an animal from a herd. I think the Veterinary Surgeon is doing a good duty to the community by eliminating from the herds all mastitis.

1245. With regard to suspected cases where, for example, bacteriological examination of the milk would not support your belief that there was tubercle in the udder, do you take any action with regard to the suspected beast?—Yes; my instructions, and I think I carry them out, are that the inspector shall keep such an animal under observation; and when he pays a visit during the milking when such a cow is under observation he has orders to see to the destruction of the secretion, and he destroys it—for instance, he puts it down the sewer.

1246. But supposing, for a moment, that an animal is suspected and you are unable, owing to the restrictions imposed by the Order and the law, to order its slaughter, do you ever suggest to the owner of the dairy that it might be a wise thing for him to get rid of that animal?—I do frequently. I often recommend that the animal should be fattened off and turned into beef.

1247. Is that often done?—I must say that they meet me very fairly in that. Of course, you can readily understand that in some cases where you have such a disease existing there is difficulty in getting condition on the animal.

1248. Prof. MARWAT.—There is always a risk, too?—Yes.

1249. The CHAIRMAN.—Are they ever sold out of the dairy?—Not that we know of. I can't say it is altogether a matter of taste on the part of the Dublin dairymen. We have not sufficient law to deal with these matters as in other places, and the dairymen know this. When an animal comes within our powers we act, and they try to fatten the animal and sell her.

1250. We had another gentleman dealing with another authority who informed us that it was his custom, whenever an animal excited his suspicion without his being able to say definitely if it was suffering from bovine tuberculosis, to intimate to the owner of the animal that it would be desirable that it should not be there on his next visit. You don't follow that practice?—No; I don't think you see doing very much good in doing so. I think it would be better to get it into the cow yard, and keep it under observation.

1251. He was dealing with a particular area over which he would be responsible, and the position was that when he sent it out of his area he was at least protecting the interests he was paid to protect, however he might injure the general public?—I don't think it is a commendable action. A man should be a citizen of the whole country, not of a parish.

1252. I merely mentioned the fact to ascertain whether you had a similar experience. With regard to the food these animals get, do you think they are generously fed for the purpose of producing milk of a good quality rather than a good quantity?—I don't; I think the feeding of the Dublin dairy cow is very high.

1253. They are economically and intelligently fed?—Yes; and for this reason—that the Dublin dairymen, generally speaking, only keeps his cow during one season's milking; he then fattens her off. During the whole of the milking period he has his eye on the main chance, for at the expiration of the season of milk he wants to fatten them as soon as possible into beef. They adopt that system very generally.

1254. So that he supplies the animal with the flesh-forming food, as well as the food likely to increase the secretion of milk and the quality of milk?—I don't say to increase the quantity, but certainly to keep up the quality.

1255. You don't believe that the fermented foods with which these animals are sometimes fed, such as grain and such things, are in any degree injurious to their health?—I would not go so far as that, because I think the experience of those who have made extensive post-mortem examinations on dairy cows that have been fed extensively on such and such a food find an enormous number of them with degeneration of the liver, and also with kidney trouble.

1256. Is that trouble likely to affect the secretion of milk?—Any degeneration from the normal are all bound to affect the secretion of milk.

1257. At all events, they give cause for anxiety?—Yes. Whatever affects the liver is bound to interfere with digestion, and an impaired digestion is bound to interfere with secretion of the milk.

1258. You told us they only milk for one period?—Yes.

1259. So that they never go over the one period?—Very few; that system is peculiar in Dublin.

1260. As a result, I take it that the dairy cows of Dublin are usually strong, vigorous animals?—Yes, and the Dublin dairy buyer usually buys a cow on the third or fourth calf.

1261. And that is about the period when they are in their prime?—The best for milking.

1262. Turning from the animal itself to those in charge of it, what have you been able to accomplish with regard to ensuring cleanliness in the milking of the cows and the vessels in which the milk is contained?—We have had to prosecute a number of the dairy proprietors from time to time for milking cows with dirty udders and to prosecute the attendants for milking with dirty hands. We insist by a by-law on the removal of udders before milking, and if that is not done we have repeatedly prosecuted the owner and his servants.

1263. Have the authorities before whom these prosecutions have been brought co-operated with you in securing the enforcement of the by-laws by imposing deterrent penalties?—Well, the penalty on a dairy boy, that is to say, the attendant, is between 5s. and 10s.; but 5s. or 10s. to an attendant in a dairy yard seems an enormous sum. But I think, taking it generally, that the penalties inflicted have been wholly inadequate for the offences. I don't think you will ever get proper reform in dairy administration, or any other administration, until you make the penalty meet the crime.

1264. That will always be a question of degree and opinion, but at the same time do you think you have reason to complain that in the existing condition of things penalties appear less drastic than they might have been?—Yes. Personally I have a very strong view on that point.

1265. I sincerely hope you have been able to effect considerable improvement from that point of view?—Yes; certainly.

1266. How often would your subordinates visit the dairy-yards of Dublin with the object of discovering whether the conditions laid down with regard to cleanliness were being closely observed?—Taking all round, every dairy yard is visited once a fortnight.

1267. By some officers?—Yes.

1268. Of your department?—They don't know what time I would go into the dairy yard, or it may be the Registrar of Dairies, Mr. Collins, would go in.

1269. And where you have reason to suspect that cleanliness is present, I suppose your visits are more frequent?—Quite so. There are certain districts that are very much worse than others, where certain dairy proprietors are very much worse than others, and those districts and proprietors always call for special attention from me.

1270. Have you much reason to complain of cows being kept in close proximity to other premises wherein dirty pursuits are carried on, such as the manufacture of artificial manures, or tanneries of that kind?—Well, I know a district where there is a manure manufacture which contains a good number of dairy yards; there is also another big firm following a trade known as gut-washing, and if you have several of these objectionable trades in a district the atmosphere, if I might be allowed to make use of a little exaggeration, is so thick on occasions when trade is brisk that you might almost cut it into sections.

1271. We have not much difficulty in assuring that milk produced in surroundings such as you have described would not be absolutely safe from the public health point of view?—No.

1272. And if the offences to which you have already referred were required by law, you think it would be desirable to withhold these licences from any person who kept a dairy in contiguity to offensive trades?—I do.

1273. Has it ever been suggested that an overall might be used by those persons who are engaged in milking cows?—Yes; it is one of the provisions laid down in our by-laws that a cotton smock shall be used.

1274. Is it in force?—Yes.

1275. What is the penalty for a breach of that by-law?—Up to 25 is the penalty.

1276. That is sufficiently drastic?—Yes, if it was justified; I suppose the maximum penalty imposed by the magistrates for such an offence is about 6s.

1277. Mr. CAMPBELL.—Is it an overall or an apron?—An overall.

1278. The CHAIRMAN.—That must pay periodic visits to the laundry?—Yes, and must be kept on the premises, because otherwise the attendant might take it home with him, and to a house where there might be some infectious disease, and thus the smock frock might become infected.

1279. Quite so.—As a matter of fact, three days ago I was examining some cows' udders, and I found very serious fault with the condition of the attendant's smock. It would have been just as well in that instance if the milking had been done without the smock.

1280. I hope you took precautions to have it subjected to soap and water treatment?—I did.

1281. Attention has been directed to the fact that in the summer period the cows of Dublin are largely grazed in the County of Dublin?—They are.

1282. Have you or your officers power to go into the country to ascertain under what conditions those in charge of the cows live, and the conditions under which the milk is put into the vessels they use for it?—We have got the power under the Tuberculosis Prevention (Ireland) Act, but I repeat what I said when Sir Charles Cameron was under examination, it depends on the permission of the Local Government Board, and I said at that time that I would be able to satisfy you that we made such an application, and that the application was not granted by the Board.

1283. What is the practice—are any steps taken at present with regard to the inspection of the conditions which prevail in the country similar to those you make in the city?—We can't do it until the Local Government Board gives us permission.

1284. Prof. MERRIAM.—You cannot go across the canal?—No.

1285. The CHAIRMAN.—Another witness took the view that it was competent for the Dublin authorities to go to the source of which the milk was produced?—The 19th Section of the Tuberculosis Prevention (Ireland) Act, 1908, says:—"The Local Government Board under Section thirty-four of the Contagious Diseases (Ireland) Act, 1878, as amended by any subsequent enactment, may, on the application of the Council of any urban district, make an Order authorising the Council to exercise in relation to any dairies outside the district from which milk is supplied within the district, all or any of the powers which may be conferred on a local authority in relation to dairies within their district by an Order under the said section." That gives us the power, or rather deals with the power, to go outside the district. Well, on the 22nd of December, 1909, Sir Charles Cameron wrote to the Local Government Board the following letter:—"I am directed by this Committee," that is the Public Health Committee, "to request the Local Government Board to authorise the Committee to make inspections of dairies in the suburbs of Dublin and the country under the provisions of Section 19 of the Tuberculosis Prevention (Ireland) Act of 1908.—I am, Sir, your obedient servant, Charles A. Cameron, Medical and Executive Officer of Health."

1286. Mr. CAMPBELL.—They acknowledged it?—And the reply to that was received on the 3rd of January, 1910, and was as follows:—"Sir,—I am directed by the Local Government Board for Ireland to state that they have received your letter of the 22nd ultimo, applying on behalf of the Public Health Committee of the Corporation of Dublin for an Order under Section 19 of the Tuberculosis Prevention (Ireland) Act, 1908, authorising them to make inspection of dairies in the suburbs of the city and in the country; and in reply I am to state that the Board do not consider that Section 19 of the Act mentioned was intended generally to separate Rural Authorities in regard to their jurisdiction over dairies supplying milk to urban districts. I am at the same time to ask you to be so good as to furnish the Board with specific instances of default by rural authorities in relation to dairies from which milk is sent for consumption in the city of Dublin." With the greatest possible respect, I hold that paragraph is hopelessly absurd. How on earth could we know what the defects were in rural districts, or anywhere else, unless we have the power to go and visit.

1287. The CHAIRMAN.—There is this further difficulty for a certain period of the year—the milk supply of the city of Dublin is derived almost exclusively from the country, whether by rail, or is driven in by the cowkeepers of Dublin, who have their cows then on the pastures, and you feel, and your authority feel, that you have no power to go out to the lands in order to ascertain whether the conditions which you insist on in the city are carried out in the country?—As a matter of fact, I have not the slightest hesitation in saying that that is where the absurdity of the whole Order comes in. For six months, whilst the cows are in the sheds, they are subjected to inspection; but for six months, when they are out on grass, there is no inspection.

1288. And no examination is made at that particular period for the presence of tuberculous udders or mastitis, or the other diseases to which the animals were liable while they were in the houses?—That I believe to be absolutely true. There is no inspection.

1289. Mr. CAMPBELL.—They are supposed then to be under the Veterinary Surgeon of the district?—Yes.

1290. The CHAIRMAN.—There is no good of living in the circles; do you know, as a matter of fact, is anything done?—Never. There is not a scintilla done.

1291. Absolutely nothing.—That is my own belief also, and what I want to point out is that, whereas provisions are in force for a limited period whilst the cows are in the municipality, once they cross the Circular road there is absolutely no inspection and no care taken to ensure cleanliness, or an examination made for tuberculous udders or any of the other ills to which your attention is directed while the animals are housed. That is my deliberate belief.

1292. You hardly consider it a satisfactory condition of things?—I consider it very unsatisfactory.

1293. Turning again to the supply of milk, a good deal comes in by rail?—50 per cent., taken all round; 50 per cent. comes in by the Dublin railway stations.

1294. Has not that total been increased in recent years?—No; one district decreased and the other increased.

1295. By which route?—I believe I am correct in saying that there is a decreasing quantity coming from the district that is associated with the creameries on the Great Southern and Western Railway, and it has been for some years. On the other hand, where creameries do not exist, for example, in the area served by the Midland Great Western and the Dublin and South Eastern Railways, there was an increasing quantity until the Dairies Order came to be enforced in the country parts.* Since then a great number of the milk producers in those districts have ceased to produce milk.

1296. Or send it to the city?—Yes; not alone that, but they don't produce it.

1297. They have abandoned the trade?—Yes.

1298. So your belief is that the enforcement of this Order has restricted the number of those who have cows for the purpose of producing milk and vending it?—Yes, that is true.

1299. What other causes do you think operate towards the reduction of the supply of milk?—Besides the creameries?

1300. Besides those to which you have referred, namely, the diversion of milk by co-operative societies and creameries, and the effect of the putting into operation of the restricting powers of the Dairies Order; what other causes do you think have tended to reduce the supply of milk?—I think the difficulty of getting good milk cows is an important factor.

1301. I would be glad if you would look at Professor Campbell when making an answer of that kind; I think he would be interested. You had an opportunity, of course, of making an inspection of the animals in the market when sent up for sale in the Dublin markets?—Yes.

1302. Taking them as a whole, do you think they are good specimens of milk-producing animals?—Yes, they are rather inclined to be of a high average.

1303. Prof. MERRIAM.—Where do they go from the market, as a rule?—A great number go to England and Scotland, and some find their way into the Dublin dairy yards; but a number of the Dublin dairymen go down to fairs and buy their cows direct.

1304. The CHAIRMAN.—There is a constant demand for these cows in the Dublin market?—Yes; in fact, a system obtains which we have been trying to defeat for a considerable time. A large number of dairy cows are brought up from the fairs and are sold in Dublin.

* See Appendix B, page 568.

that never see the market at all. We have been fighting that question and trying to stop it under the Lairs Order.

1305. Prof. MERRAN.—Do these go out of the country?—All, I am sure, go out of the country. They don't sell them in the lairs now, for this reason: we have got them under strict observation, and there has been a couple of very serious prosecutions against the owners of the lairs, and now people have recourse to selling them on the streets and lanes.

1306. The CHAIRMAN.—Which is in contravention of your Order?—I am very glad to say that in this instance it is the Department of Agriculture which have the enforcement of the Lairs Order, and not the Dublin Corporation.

1307. Some reference was made to the fact that a considerable amount of the milk supply for Dublin comes by rail from the country. I should like to know exactly what is done by your Department with regard to the examination of that milk coming into Dublin?—That is by rail. As far as I know, nothing has been done, except of an experimental character. That was done by Sir Charles Cameron a couple of years ago. He examined as to the cleanliness of the supply, but, so far as I know, there was no action taken as regards the examination of the milk for tubercle bacilli.

1308. Do any of your Inspectors attend at the various railway termini for the purpose of examining the condition of the vessels in which the milk is carried?—Yes, and a couple of years ago we found that the covering interposed between the lid of the can was often a dirty, filthy cloth. We got the names and addresses of the people who were sending milk to the city, and sent circulars to them to have these dirty cloths done away with, and there has been introduced a kind of oil paper.

1309. Has any inspection been made to see that the suggestions in the circular were carried out?—Yes, but it is not a regular inspection.

1310. From the observations of your Inspectors and the reports made to you, do you know if milk is sent in vessels with tightly fitting lids, so that it is impossible for dirty substances to find access?—It is very easy for dirt and water to get into them, as the cans are frequently very imperfect.

1311. Was there any action taken for the purpose of securing that the source of contamination should be removed, or the liability to contamination minimised?—No, except the circulars I spoke about.

1312. Is it because you feel that there is some doubt as to the powers conferred on you that you have not taken more drastic action in regard to this matter?—I think the real reason for not taking action to examine specimens of milk for the tubercle bacilli is that there has not been a bacteriologist appointed in the city of Dublin. The matter has been under consideration, I may say under dispute, for a couple of years past. There was a bacteriologist appointed by the Municipal Council—Dr. Russell—but he has not yet been sanctioned by the Local Government Board.

1313. It is a matter of controversy between the Local Government Board and the Corporation as to whether or not Dr. Russell's qualifications entitle him to hold the position?—Yes, that is so.

1314. Do you not think that it is a very unsatisfactory state of things?—Yes, I think the time is ripe now for the appointment of a bacteriologist, and also for the establishment of laboratories in the city for dealing with this matter. I feel very strongly that the time has arrived when we must deal with this question of tubercle in milk, and that there must be extensive samples taken of the milk produced in the city itself, and of the milk supplied to the city by rail. The samples should be sent to a central laboratory and tested with all possible speed, and allow us to effectively deal with the milk supply.

1315. Do you not think that it is extremely desirable that the officer who is responsible for the carrying out of these examinations should have ample time to have the work done with all due diligence and care?—Yes.

1316. Is it not also of the utmost importance, in the event of infection being discovered, that should be made at the earliest possible moment?—Yes, it is absolutely indispensable for the benefit of public health. Even in animal experimentation, it takes anything between ten days and three weeks from the time

of the inoculation of the guinea pig before the effects are shown. I should suggest that during that period there should be the strictest supervision of the suspected animal.

1317. Do you think it extremely desirable that the Local Authority of the district to which the milk is sent for sale should have the right to go into the country and make such examinations as they think necessary, in order to investigate what the source of infection is?—Yes, it is important for the public health.

1318. Does the right exist to your knowledge in any other public health area?—Yes, extensively in England; in Glasgow, Edinburgh, Manchester, Warrington, Liverpool, Sheffield, and Hull.

1319. Can you tell the Commission how these powers were obtained?—Was it by general or by special legislation?—By special legislation.

1320. And have the results of the work carried out under these extended powers proved satisfactory?—Yes, most satisfactory.

1321. Has it tended to reduce the number of samples of milk that have been found on analysis to be infected with bovine tubercle?—Yes, it has reduced them enormously.

1322. You were good enough to send to the members of the Commission a report which was published by the Office of Health in Manchester?—Yes, Dr. Niven is the Medical Officer of Health in Manchester, and Professor Delaplace is the Bacteriologist dealing with this matter, and he is provided with special laboratories.

1323. So that it is his duty to examine the specimens of milk submitted to him by those under his charge, and to report on their condition?—Yes.

1324. Do you think it desirable that all large centres of population should have the same powers conferred on them, and an officer appointed for the purpose of carrying out this duty?—Yes. No one else can do it satisfactorily except a whole-time officer.

1325. The powers conferred by these special Acts entitle the Public Health Authorities in the various districts into which the milk is sent to make examinations of the cans. Do you think it would be wise that such powers should be extended to this country?—I seriously do.

1326. Do you believe that until such power is conferred and put into practical operation it will be difficult, if not impossible, to secure a pure milk supply in large centres of population, such as Dublin?—Yes.

1327. Particulars are given in one of the tables referring to Manchester as to the number of samples found to be infected with bovine tubercle at different periods, and I see that there is a considerable reduction in the numbers?—Yes.

1328. Is it your opinion that the reduction in the number of samples found to be infected with tubercle bacilli is due to the powers conferred on the Local Authorities and to the supervision exercised?—Yes, and to the education given thereby to the farmers in the districts in which the cattle were affected.

1329. Mr. CHAIRMAN.—You are referring now to the English cities?—Yes.

1330. The CHAIRMAN.—The point of my examination is to show exactly what power was conferred by special legislation, and how far Mr. Watson thought it would be advantageous to have similar powers conferred on Dublin and other large centres of population. I see here, by Table III., that the percentage of infected samples has been gradually diminishing, and diminishing from a rather alarming percentage to a comparatively small one?—Yes.

1331. I see there have been from time to time fluctuations with regard to the percentage of infected samples; there is nothing to show whether these were due to special circumstances, or whether they had been traced to their source.—I refer to the number of tubercle samples. In 1902 it was 18.8, and in 1901 it was 9.5. I am reading now from Table V.—I think that would be only a natural state of affairs. Of course, it would depend upon the number of animals bought. One year the purchaser might be unlucky enough to buy a large number of tubercular animals, and next year, just by a piece of luck, he might not buy any infected animals.

1332. Therefore it would be unwise to draw any deductions from these fluctuations?—Yes, you could not possibly do it.

1333. Are samples of milk sent by rail tested to ascertain whether water has been added?—That is not my department.

1334. You have nothing to do with it?—No.

1335. I wanted to know if the milk is subjected to the same degree of inspection as the milk raised in the city, in regard to its purity?—I have nothing to do with that; it is not within my sphere.

1336. Nor have your subordinates?—No, nothing to do with it.

1337. What they have to do is merely to make an occasional inspection for the purpose of seeing if the vessels in which the milk is brought present any objectionable features?—Yes.

1338. And then you circumscribe the district from which the milk comes?—Yes. There is another department—the Food Inspectors.

1339. I should have asked, in dealing with the question of dairy yards, if you have anything to do with the shops in which the milk is vended?—Yes, that work comes within the terms of my appointment.

1340. Do you, or the officers under you, make periodical inspections of these shops?—Yes, very extensively.

1341. Do you find that the buildings in which the trade is carried on are generally suitable?—Well, as suitable as circumstances permit; but all the houses that are used as dairies in Dublin are usually old-fashioned houses; the newer houses are not used for dairy purposes.

1342. Speaking personally, do you think that the powers conferred on you are sufficient to enable you to supervise these operations with as much diligence as their importance demands?—Well, I do not think I would be warranted in finding fault with the powers as regards the dairy shops.

1343. Are you satisfied that if an extension of powers should be sought in other directions, it would not be necessary to include the houses in which the retail trade of milk is carried on?—If the powers indicated in my previous statement were conferred they would tell in favour of the milk shop. For instance, if you have a better class of man to handle the milk, and he knows what cleanliness means, and if he is clean in his person, he will see that his shop is clean.

1344. Lady EVERARD.—I would like to ask, is the milk coming into Dublin only inspected for tuberculosis. Supposing a car arrives at the station, what is your procedure?—My Department does not do that, that comes under the Sanitary Department—the Food Inspectors.

1345. The inspection of dirty milk arriving in the station is not in your Department?—No.

1346. When do you take samples of tubercular milk?—There are no such samples taken in Dublin.

1347. There are no such samples taken at the station?—There are no samples taken up to the present with the view of looking for tuberculosis. The Sanitary Authorities take samples to investigate as to the purity of the milk.

1348. The question was asked of one of the witnesses whether, in case a cow with a tubercular udder had been discovered, the animal could be disposed of without the inspector knowing where she went to?—We have a law to deal with that.

1349. That is what I want to know. If you find a cow with a tubercular udder, what is the course of procedure of your Department?—I take a sample from the secretion of the udder and send it to Sir Charles Cameron for bacteriological examination. If the result goes to show that tubercle bacilli have been found in that sample, I am warranted in certifying under the Prevention of Tuberculosis Order that such an udder is tubercular, and in recommending the destruction of the cow.

1350. Can the cow disappear from the shed from the time you have taken the sample until you receive the result of the analysis?—I think it could do so, but we keep her under supervision, and such a thing has not occurred up to the present.

1351. THE CHAIRMAN.—Have you power under the authority of your Department to order the slaughter of the beast?—Yes. My certificate recommends it to the Local Authority, and the Local Authority orders its destruction. Those are the words of the Prevention of Tuberculosis (Ireland) Order.

1352. Do you think that more general effect was given to this Order, the officer who is responsible for seeing to the destruction of the beast should have a discretion as to the amount of the compensation to be paid?—Yes.

1353. Rather than hold them to the present maximum of £10?—Yes. I think it would facilitate the extermination of disease if we had powers such as you indicate.

1354. Has a precedent been established for that under the Plague Prevention Order?—Yes, and all scheduled diseases.

1355. Full compensation is given for the animals destroyed?—Yes.

1356. And in order to secure the abolition, so far as it is humanly possible to do so, of animals suffering from tuberculosis, you think that the power should be conferred on the Local Authority to give full compensation for the animals destroyed?—Yes. As a matter of fact, some seven or eight years ago there was a Committee in the House of Commons sitting to investigate this question, as to whether compensation should be paid in this case, and I stated, on the suggestion of Sir Charles Cameron, that the Corporation of Dublin were of opinion that reasonable compensation should be given. That Committee investigated this question, and as a result of their investigations they agreed that it should be done, but they suggested, moreover, that it would not be wise to go in for legislation on this matter, as there was a Royal Commission sitting on the question as to whether tuberculosis was communicable from the lower animals to man. The finding of the Commission is now out.

1357. Lady EVERARD.—I see that in the summary of your evidence you say "that the Tuberculosis Prevention (Ireland) Act, 1906, does not clearly say whether the owner is to get the proceeds from such cessante or portion of cessante in addition to the compensation?"—I understood there has been a dispute going on for the last two or three years, and it has never been established yet. I may tell you that I did my best to precipitate a crisis in order to have it fixed by law, but I was not successful, because the dairymen would sooner let the beast go and get no compensation than face litigation.

1358. Sir JOHN LEECHMAN.—You are of opinion that a licence would be very much better than the present system of registration?—Yes.

1359. And the licence, you say, would eliminate a certain proportion of unsuitable vendors of milk?—The licence should be granted with certain reservations and restrictions. We should take into account the character of the man before granting the licence.

1360. At all events, you think the net result is that the selling of bad milk would be eliminated?—Yes, of dirty milk; but I think even a person of clean habits might have a tendency to defraud the public.

1361. You say you watch and investigate certain suspicious conditions of the udder. What are these suspicious conditions?—All forms of mastitis and inflammation of the udder, and abnormal tests and inflammation of the udder.

1362. You take no action unless tubercle bacilli are suspected of being present?—We stop the supply of milk in the case of mastitis, and in dealing with a case of the udder other than tubercular it is open to question. There should be some protection for the veterinary inspector in that case.

1363. You think the Veterinary Inspector should be protected by law, because in certain instances you may find puss matter, which is not tubercular, coming from the udder, and that he may be exposed to the danger of prosecution?—Yes.

1364. Does anyone advocate the use of milk where puss is present as being fit for human consumption?—Not directly. But in dealing with matters of this description there is no higher authority than Dr. William G. Savage, who made a very extensive series of bacteriological tests of milk from diseased cows. The result of these investigations, proved in his very able report, is that very great doubt existed as to the pathogenicity of these conditions.

1365. Has he any doubt as to whether the milk is wholesome or unwholesome?—No. He says in his report, which is very, very extensive, that the organisms found in milk which cause the conditions of mastitis cause sore throats.

1366. My question is whether such milk is wholesome or fit for food?—I would not like to say it was. I know I would not care to use such milk.

1367. That is what I want to bring out. Now, the next point is that you have got powers at present to

milk regulations for inspecting udders, and prosecuting where the udders are dirty, or where the hands of the milkers or the surroundings of the cow are dirty and unsatisfactory?—Yes.

1568. Do you take any care to see that there are facilities for the workers to wash their hands?—Yes.

1569. Are they supplied with hot water, for instance?—They are always supplied with a vessel for washing their hands and a towel, and we see that these are present in every dairy.

1570. Well, then, you say there is no inspection whatever of animals which are out on grass during the six months of the summer time?—As far as I know there is none.

1571. And during that time consumers of milk in Dublin have absolutely no protection so far as the danger of being infected with tuberculosis, typhoid, or any other disease spread through the milk supply is concerned?—Certainly, as regards tuberculosis in the udder. Of course, typhoid is not a disease of the udder.

1572. The absence of inspectors will make it more likely that such a disease may be considerable?—Yes. There is just a point arising out of that which I would like to impress upon the Commission. I think it is of the greatest possible importance that not alone should the owner be licensed, but that there should be a register kept of the names and residences of the attendants.

1573. That is the remedy you suggest?—Yes, because it is well known to the majority of this Commission that some of the attendants live in lodging-houses and rooms which are far from perfect, and it is quite possible there may be very serious disease in them. Otherwise we have no opportunity of getting at the men, except names and addresses are registered. But if the system suggested were adopted it would tend to make things better; and it would then be the duty of the Medical Officer of Health of the district to make known that Mr. Paddy So-and-So, who lives in a house where there was typhoid or other disease, is ineligible for dairy work, and in that way it would assist very materially in the suppression of infectious diseases.

1574. I think you also said in your evidence that the operation of the Dairies and Cowsheds Order has reduced the number of purveyors of milk, and so tended in some way to diminish the supply?—Yes.

1575. This is an unfortunate thing?—It is, very unfortunately.

1576. Do you think it would be better to have less milk, but good, than poisonous milk, disseminated amongst consumers?—Yes; but I know for a positive fact that some of the milk purveyors in Dublin who got large supplies of milk from the country—more particularly from Wicklow and Wexford—have ceased to get their supply since the enforcement of the Dairies and Cowsheds Order, because the farmers say, "we will give up the trade; we will go back to the fattening of calves."

1577. And, lastly, your evidence is that, under existing conditions, there is no protection whatever against a child being fed on tubercular milk?—Practically none.

1578. Mr. CAMPBELL.—Except that you examine the udders?—Yes. Even in the winter months only 50 per cent. of the milk that is consumed in Dublin is produced in the city; the other 50 per cent. comes from the country.

1579. And is mixed with the Dublin supply?—Yes.

1580. And practically all the milk during the summer months comes from the County Dublin and the country?—Yes.

1581. The CHAIRMAN.—There is practically no real protection?—That is true; 50 per cent. comes from the country, and is mixed with the supply produced in Dublin, so that what may be pure is contaminated by means of the country supply.

1582. Mr. WATSON.—With regard to this 50 per cent. of milk which comes from the country and over which there is at the present time, according to your evidence, no system of inspection, have you not in your bye-laws or orders the power to inspect that milk? Can you go to the railway stations?—Yes; I believe we can go there and inspect it. I don't like to criticise any Department outside my own, and for that I will take full responsibility.

1583. But this inspection of milk at the stations, is it not as much under your control as inspection in the cowsheds?—Well, I think that that would be really the function of the medical officer of health. I think I should deal with the animal that produces the milk, and, as far as possible, see that it is free from disease. To inspect the milk when it has come from the animal is, I think, the duty of the medical officer of health.

1584. As far as you are aware it is not lack of power that prevents this inspection of the milk at the stations being carried out?—No.

1585. You gave evidence that you have no power to go outside your own area and inspect anyone's dairy yard and animal?—So it appears from the Local Government Board's opinion.

1586. That you have no power?—My reading of the Act would be that we had the power. I think it is hopelessly absurd on the part of the Local Government Board to ask us to specify reasons and places if we have not the power.

1587. That is not exactly the point I wanted to make. Do you actually know what occurs outside?—No.

1588. Because in Belfast we were in the same position—no power, but our dairy inspector makes it his business to go into every corner of the country to see what is going on?—Have you in Belfast as big a number of cows and dairy premises as we have in Dublin?

1589. I don't know. But this man goes beyond his powers and inspects in Belfast and out of it, and visits the farms?—We are a loyal people in Dublin; we always abide by the law.

1590. You gave evidence about the quantity of milk coming from the country districts having been reduced?—Yes.

1591. Have you any suggestion to make as to why the creamery districts should send less whole milk?—Because they use it at the creameries for making butter. It cannot be used for butter and given as fresh milk at the same time. It is easier for the farmers to run the milk into the nearest creamery.

1592. In spite of the difference of price?—Yes; and I may say that I have the authority of a clergyman on this point—that the people in some districts associated with the creameries not alone produce very little milk, but become very lazy. They milk the cows, send the milk to the creamery, and they look upon that as their day's work.

1593. You say the number of cows in Dublin has decreased in recent years. Does that suggest that the milk supply in Dublin has decreased?—Oh, no.

1594. How does that come about, if the number of cattle in Dublin has decreased?—Things have been more than balanced. I cannot say definitely, but you have now an enormous quantity of milk coming up from the country owing to increased railway facilities and transport, and you have a tremendous quantity of condensed and Swiss milk which goes by a thousand and twenty-five names. That has undoubtedly interfered with the legitimate milk supply, and there is certainly no testing of that.

1595. In other words, so far as I have been able to gather, your evidence suggests that the creamery system reduces the milk supply?—Yes.

1596. That the Dairies and Cowsheds Order has reduced the supply?—Yes.

1597. That the number of cows in Dublin has decreased?—Yes.

1598. And that the condensed milk factories have decreased the supply?—Yes.

1599. And I have not been able to find from your evidence where there is any counterbalance?—The number of creameries has reduced the milk supply, but there are other districts not hitherto producing milk that do so now and send it into the city.

1600. In spite of the Order?—Yes. I have not indicated that there was a diminution in the supply.

1601. But what I want to find out is where the increase comes in to counterbalance the four definite decreases that you mentioned?—The supply has been maintained by increased milk from the country and also by the United milk, which takes the place of the genuine article in a great number of instances, and I suppose the people have to do with smaller supplies. I know a great number of people who say they cannot supply the demand to the individual to as large an extent as they used to do. They have to put them on short commons.

1403. So your opinion would rather be that the bulk of fresh milk now sold in the streets of Dublin is one day is less than it used to be?—Yes; I think it is.

1403. But at present there is no means of estimating that decrease?—No; it must be an approximation.

1404. Then, with regard to these careless, dirty, untidy people—when you catch a thoroughly untidy man who goes on being untidy and dirty, do you bring him into court from time to time?—Yes.

1405. Is he fined?—Yes; a shilling, as a rule.

1405. And if the same man is brought in four or five times do the magistrates still go on putting on a fine of a shilling?—Yes, they are very sympathetic.

1406. They don't increase the penalty when the offence is repeated?—Very seldom, and they certainly do not increase it sufficiently.

1407. Lady Eversham.—Have you had any case of a cowkeeper who keeps his place dirty; I mean, have you any power to refuse him registration?—No. In Glasgow they have power to revoke a licence, even at any time, and I think we ought to have such powers in Ireland, and be able to refuse a renewal of a licence if it was considered necessary.

1408. Mr. WATSON.—In your preliminary evidence, Mr. Watson, you quote certain reasons why the milk supply is scarce in certain parts of the country, and one of those is marked E in the summary of evidence handed in. "The difficulty of getting good milch cows at a moderate price, such as would suit the wants of a small farmer; this is to some extent due to the operations in connection with the dairy trade of slaughtering as beef cows on their third or fourth calf after taking one season's milk. This system has sprung up since the wholesale slaughter under the Pleuro-Pneumonia Act. Before the pleuro-pneumonia restriction period the Dublin dairymen brought round his cows, and thus kept good milch cows for three or four seasons, but now this is completely changed." You give as a reason for that that such a condition has sprung up since the wholesale slaughter under the Pleuro-Pneumonia Act?—Yes.

1409. We had no wholesale slaughter in Belfast?—You had.

That must have been before I was interested in the milk trade.

1410. Prof. MERRIAM.—That was fourteen or fifteen years ago—in the early nineties?—It was nearly as bad in Belfast as it was in Dublin.

1411. Mr. WATSON.—In the system in operation elsewhere—where the cow is milked for a year and then sold as beef?—No. In England and Scotland, when they come across a good milch cow they keep her in the family for a long time. That is at once an advantage and a disadvantage. It is an advantage to keep a good cow, and it is a disadvantage, because there is a tendency to increase the possibilities of the animal becoming tubercular. The more an animal is housed the greater is the danger of its becoming tubercular.

1412. You suggest that this condition is peculiar to the Irish milk trade?—No; I don't think it is peculiar in Limerick and other creamery districts.

The CHAIRMAN.—I don't think it is.

1413. Prof. MERRIAM.—What do you say is peculiar?

Mr. WATSON.—The system of keeping a cow for one year and then giving it over for beef.

Prof. MERRIAM.—In Edinburgh that is the rule.

Witness.—I think the custom in most of the English towns is, if they come across a good milch cow, to keep her and have three or four calves before they sell her. The custom I mentioned is peculiar to Dublin, but it is not true of Limerick and the creamery districts.

1414. The CHAIRMAN.—I am familiar with the fact that in Limerick they keep the cow till old age?—Yes, and in the large English cities.

1415. Mr. WATSON.—You are of opinion that the system you refer to was due to peculiar conditions subsequent to the Pleuro-Pneumonia Act?—Yes.

1416. And if the other system was desirable, there is nothing to prevent the people from going back to it?—No. The point that concerns me most is the freedom of the animals from tuberculosis.

1417. As regards the Dublin trade as a whole, I take it is in the greater part in the hands of small farmers, comparatively small men without much capital?—Yes.

1418. And they could not go to the cost of installing expensive machinery and having the most modern methods introduced?—I don't think so. They are mostly small men without much capital.

1419. These are the men who control the trade in Dublin?—Yes.

1420. Is there a commercial dairy on the Continental lines connected with the Dublin supply?—No; that would be a big scheme. The nearest approach to that is the Lanes Dairy.

1421. Is it run by a private company?—Yes; that is the only instance I could give you.

1422. With regard to the contamination of cows in Dublin for tuberculosis, you have given some interesting figures on page 5 of your piece of evidence. You say that in 1908, 1,426 were examined, with the following results: suspected cases of tuberculosis (not cattle), 8. These were not cows in milk?—No.

1423. There were only four samples of suspected milk taken?—Yes; and there is no apparent evidence of tuberculosis at all.

1424. You say the samples of suspected milk taken were four, and the proportion of suspected cases were 5—that makes 8. You say, "the masses irregular in colour, and where an acute inflammation was present, and in which tubercle might be the initial factor, numbered 15"—Yes.

1425. In point of fact, you did not succeed in proving tuberculosis of the udder in any case?—No, the bacteriologist gave a clear certificate.

1426. You had no proof of the existence of tuberculosis of the udder?—No; and the only protection I have in handling the samples to the bacteriologist and letting him pronounce upon them. If he says the sample is not sufficient, I will get another for him. I go by his instructions.

1427. Later on, in the next year, the suspected cases were 11, and the samples of milk taken numbered four. Comparing these figures with those you gave in the quotations about Manchester, you would suggest that in Dublin there are much lower tubercular udder cases than in Manchester?—That, free from all prejudice, is true.

1428. Do you think that the figures indicate the line of truth?—I think it is possibly true, I don't say it is absolutely true. I think the incidence of tuberculosis in Irish milch cows and fat beasts is very much less in Ireland than in England or Scotland.

1429. That is, the figures which these two comparisons suggest are pointing in the direction of truth?—Yes.

1430. Because the discrepancy is very great?—Yes. We had an investigation recently in our cattle market as regards the statement made that a number of tubercular cows were exposed for sale in the cattle market, and the Public Health Committee convened a meeting in the City Arms Hotel, which was attended by representatives of the salesmasters and large exporters, and all the men who trade in that market, including Englishmen and Scotchmen. We took evidence direct as regards this question of tuberculosis in Irish cattle from men who bought up to 600 fat beasts in the week, and their verdict was that the Irish cattle were practically free from tuberculosis. One man from Oxford, a Mr. Carter, who has to purchase stock in the North of Scotland, Norwich, and other English districts, for three months of the year, stated that the proportion of tubercular animals was far greater in those districts than in Ireland. Some two years ago, Lloyd's Limerick people were about to start a separate branch here in Dublin, and when the agent interviewed me, I said, "You are coming at the right time, there is no tuberculosis here now, it is vanishing away, and we are practically free from it." He replied by saying, "That is exactly the reason why we are coming, because we have secured the information that the Irish cattle exposed for sale in the big markets in England are very much freer from tuberculosis than the English or Scotch cattle, and we find this to be a very good place to start a branch."

1431. Sir JOHN LESTRAICHE.—You don't think that is a reason for relaxing precautions?—No.

1432. Mr. WATSON.—And, consequently, when you say on page 7 that only three cows were slaughtered under this recent Act during the year, that does not convey that undiscovered tuberculosis is extensively prevalent?—No, it does not. I would like to be perfectly certain upon this question of tuberculosis of the

udder. I consider it is absolutely essential, if you want to get at the root of it, that you must take five samples of milk, have a bacteriological examination, and follow it up as is done in England, and not be doing the thing by half measures.

1433. Mr. JOHN LEWIS.—And without it you could not know what is the real condition of the animal?—No.

1434. Mr. WILSON.—At the end of this section you have already related to you, you speak of keeping the suspected animal under close observation. Could you give the Commission some suggestion of how constant that observation could be in practice. Supposing you have to deal with a careless, untidy, ignorant man—I won't say a dishonest man—and you advise him not to use the milk of a certain cow. He says he won't, but when he gets away he returns to the old practice again: is there any way by which that man could be prevented from using that cow's milk?—I say we should have power to isolate, to see that proper conditions were observed, and make certain of the isolation. And when the suspicion was strong, we should be empowered to slaughter the animal suspected. In a question of such importance as milk, I think where there is a well-founded fear or suspicion of tuberculosis of the udder, we should be protected by the law in slaughtering the animals.

1435. Would you ask for the use of the tuberculin test before slaughtering?—Yes, I think it would be very desirable.

1436. In other words, although, at the time of inspection, the Inspector may pour the milk down the sewer, the control is not very effective?—No, it is not; there can be no effective control unless you absolutely remove the suspected animal.

1437. Have you any reason to believe that a suspected cow may be hidden away in an outlying shed, so as not to come under the notice of the Inspector?—That would not surprise me at all. During the pleuro-pneumonia outbreak I knew of a dairyman who kept suspicious animals away from observation by having two yards, in one of which he placed the suspected cows.

1438. Referring to the quotation you have got from the Manchester report, the whole of the statement sent in by you is from the report?—Yes, with a slight addition. I only gave the report to show what was being done in Manchester with such excellent results. I think you can accept the name and reputation of Professor Delaplace as good enough to assist you in your deliberations.

1439. Mr. JOHN LEWIS.—Where was this report published?—It was read at the Congress of Veterinary Officers of Health in Edinburgh. It was only printed for circulation among the Association.

1440. The Chairman.—Mr. John Leighton says it is a very valuable document, and should be in the hands of the Commission. We will get the Secretary to write for copies.

Witness.—I will be only too pleased to get them for the Commission.

1441. Mr. WILSON.—You gave us evidence that the percentage of clinically tubercular cows is not so large in Ireland as in England. You also advise us to recommend power to slaughter on suspicion, after applying the tuberculin test?—Yes.

1442. Would you agree with me that it is no injustice at all to the farmer to slaughter such an animal, because a cow of that class is generally a "pinner," and is costing the farmer as much as, or more than, she brings in?—I would not go as far as that. I know it is an exceptional case. There are a tremendous number that will fatten when they get over the acute stage.

1443. The animal I am speaking of is a clinically and obviously diseased animal?—Those ought to be slaughtered.

1444. Would you agree with the suggestion that animals of that kind are not usually earning money for their owners?—No, they are not.

1445. Mr. JOHN LEWIS.—And are they not a danger to the rest of the herd?—Yes.

1446. And are you not doing the farmer a service in taking away such a cow?—Yes.

1447. Prof. MERRIM.—Moreover, you are allowing him £99 compensation?—If you allowed full compensation, as is done in the case of pleuro-pneumonia, you would find that, instead of the cows that are doing so enormous amount of harm being concealed, every honest citizen would come forward and say it would be no loss to the owner if I reported the case, that he should

have the animal slaughtered, and he would be allowed compensation. Could you give compensation for the live-stock, and get the active sympathy and support of the owners, you will never make satisfactory progress.

1448. Mr. WILSON.—You gave on page 8 of your paper of evidence a return showing the number of cases reported by the Manchester authorities that were obviously suspected. You say that out of 1,672 animals that were obviously suspected only 419 were found to be producing tuberculous milk at the time of the inspection?—Yes.

1449. 419 of the suspected animals were proved to be tuberculous by inoculation experiments?—Yes.

1450. And would you agree that the remaining three-fourths of the suspected animals should be inoculated by the tuberculin test, and slaughtered if they reacted?—Yes.

1451. And that compensation should be given?—Certainly, if the result of the examination was in favour of destroying the animal.

1452. Mr. JOHN LEWIS.—Of course, a great deal would depend upon the amount of suspicion?—Yes.

1453. Prof. MERRIM.—Arising out of Mr. Wilson's question, you would not slaughter every animal that reacted to the tuberculin test?—No; I think that would be a very bad order.

1454. Mr. WILSON.—Out of an enormous number of cattle 1,672 were suspected. Out of apparently 8,000 samples of mixed milk, which covers a large number of cows, they found that 1,672 cows were suspected, and that only 419 of these were actually producing tuberculous milk at the moment?—Yes.

1455. And it does not at all follow that others of the 1,672 were not secreting tubercle bacilli at another moment?—That is so. A sample taken to-day might be free from them, and tomorrow the milk might be coming with them. The question of slaughter is a matter of finance from beginning to end. It would take such a large sum for compensation for all these cows that the State is afraid that the expenditure on the Bact would drop into insignificance compared to it.

1456. That is the argument I want to get a little bit away from. I want to speak of the clinically tubercular animal?—Yes; they should be slaughtered.

1457. And when you get what this gentleman got in Manchester, the suspected animals should be tested, and the ones that did react should be slaughtered?—There ought to be some differentiation in the cases of suspicion that reacted and were not open. An animal might react to the tuberculin test, and not be a source of very much danger to the animals around. But I think that in cases where the animal did react after the tuberculin test had been applied the animal should be isolated. I don't say slaughtered, unless you believe that it is openly affected, and is likely to affect other stock. That really brings us down to the destruction of all reactors, that they would represent an enormous sum.

1458. I am speaking of the animals which are visibly wrong?—All cases of open tuberculosis should be destroyed.

1459. From your evidence I gather that there is a small number of these animals in Ireland as compared with England and Scotland?—Yes, the number is small.

1460. Dr. MACDONALD.—£10 is a moderate compensation for that?—I would sooner give full compensation in all cases.

1461. Professor MERRIM.—Are there many animals that are clinically tubercular worth £10?—I would not be surprised if there are some. I think you would get a number in Ireland.

1462. Are they worth £10 in the open market?—Perhaps not, because they are always liable to be seized.

1463. Mr. CAMPBELL.—Surely in the Dublin dairies you would find five big cows with tuberculosis in the udder that would be worth far more than £10?—I really must say that the number of animals affected with tuberculosis of the udder in Dublin is very small.

1464. Are there many cows standing in the Dublin dairies to-day worth less than £10?—The average price of a dairy cow in Dublin is anything between £15 and £18.

1465. Mr. WILSON.—Have you any reason to suppose that your examination and control of disease had done what the report suggests—driven unhealthy animals into places where they are less easily found?—I

think they are very much more careful of the stock they buy. I don't think that they drive them into places where they are not observed.

1466. Mr. CAMMELL.—A great deal of the milk supply that is now coming in by rail is from places where veterinary inspectors have been appointed for the purpose of looking after the cattle?—Yes, recently, within the past twelve months.

1467. So it is hardly fair to say that all that milk is coming in without inspection?—It is only within the past twelve months that many of these appointments have been made, and I think there would not be a very great difference in the supply now.

1468. We have in evidence that the great bulk of these districts are now supplied with a veterinary surgeon?—Yes.

1469. So I think we may fairly take it and expect that, no matter what this Commission may recommend, already some improvement has taken place?—Most undesirable.

1470. Do you think there would be any danger of your coming into conflict with the local authorities administering the Diseases and Cattle Order if you had power to go down into their districts?—I have no doubt about it; there would.

1471. Do you think that in one of the reasons why the Local Government Board is anxious to give the new system a fair trial?—I don't know that it is, but it is reasonable that they should take that view.

1472. They have, to your own knowledge, within the past twelve months made strenuous efforts to get veterinary surgeons appointed?—Yes.

1473. And co-operate with the Department of Agriculture?—Yes.

1474. We have it in evidence that a number of veterinary surgeons have been appointed, and it is only reasonable that the new system should get a fair trial?—Yes, I think so.

1475. I would like to ask your opinion about this question of tuberculosis in cattle generally. I am very much interested in it, and the Department of Agriculture is interested in it too. Don't you think that the way to tackle this tuberculous question is to get the cattle free from it altogether?—I do.

1476. Now, you are aware, I dare say, of the recommendations made from time to time to try and get rid of it?—Yes.

1477. That is, that animals found with tuberculosis should be tested with tuberculin, those which react being kept separate from the others?—Yes, and if you have a high-class stock you need not be afraid to rear calves from re-acting cows. That system has been very successful in Denmark and other places.

1478. You know it is not in operation in Ireland?—No, it is not.

1479. It has been very successfully carried out elsewhere. Do you know that it is the case that public opinion in Ireland will not allow the Department to recommend farmers to send to the abattoir animals that react, and that the Cattle Traders' Association raised a great rumpus over this subject, and questions were asked in Parliament and the thing had to be stopped?—Yes.

1480. I put that question to you purposely, because you understood this question and would be able to elicit public opinion in the matter. Take the ordinary cattle of the country—the cattle in the ordinary dairy yards of Dublin—you agree that, if tested, a great number of them would react. Notwithstanding that, you would not hesitate to fatten these animals and send them to the butcher?—I would have no hesitation whatever.

1481. And you say there is no reason why the beef should not be consumed, after inspection of course?—Yes.

1482. Would you recommend the Department to try to encourage this system of eradicating tuberculosis?—Yes.

1483. More particularly from among the pure-bred herds?—Yes; there should be grants given for breeding tuberculin-free cattle, and the tuberculin test should be placed at the disposal of farmers.

1484. Of course, if the cows re-acted, there is no necessity for disposing of them there and then?—That is so; they ought to be separated and put in houses by themselves.

1485. But there is no reason why you should not breed from them, they might have perfectly healthy offspring?—Yes, perfectly healthy.

1486. If the offspring are taken away and kept with cattle that don't react?—Yes.

1487. So there is no necessity for an immediate slaughter of the cows?—No.

1488. And are you of opinion that if that system were carried on with our pure-bred herds it would lead to the reduction of the number of re-acting cows in the country?—Yes.

1489. And that would react upon the milk supply?—Yes. In a matter of seven or eight years on the Continent it has had magnificent results.

1490. In confirmation of what you said about the cows of Ireland not being so tubercular as those of Great Britain, I don't know if you are aware of the work of the late Mr. John Speer, a very important Glasgow farmer and dairyman, and a prominent agriculturist in Scotland?—No.

Well, for many years he was supplying milk from cows that did not react. He had occasion to purchase Irish and British cattle, and he submitted them to the tuberculin test. He told me afterwards that the Irish cattle were very much freer from tuberculosis than the others?

The CHAIRMAN.—That is very gratifying.

1491. Prof. MERRIM.—Referring to the question which Professor Campbell put just now, it is not common to find tuberculosis in the flesh?—No.

1492. Unless the disease is very generalised, no one thinks of condemning the carcasses?—No.

1493. Seizing the portion that is affected is sufficient to guard the consumer?—Yes.

1494. Consequently, there is no reason why any person who wants to free his herd from tuberculosis should not send his cattle to the abattoir to have the animals slaughtered?—No.

1495. And if the food was found to be unfit for human use, you compensate the owner?—Yes, if the law permitted.

1496. That would be an inducement to the farmer to send his cows to the abattoir to be slaughtered?—Yes.

1497. And there is only a small amount of risk that the animal would not pass the test?—Yes.

1498. And in a period of years, with judicious compensation, it would be possible to rid the herd of tuberculosis?—Yes, it would only be a question of years.

1499. Now, we have heard tuberculosis of the udder spoken of very glibly; is it in many diseases to diagnose?—It is very difficult.

1500. You might have cows in which you would have little reason to suspect it was present, and yet they might be found to have the disease extensively?—Yes.

1501. And it is not always necessarily a cow that appears to be in bad condition that is tubercular, or is suffering from tubercular mastitis?—That is so.

1502. As regards these other diseases of the udder, do you think it is possible that certain of them may be dangerous to man?—Some of them, I suppose, would be.

1503. They might be infective to man?—Yes.

1504. It is possible also that the so-called milk-balls would be?—The researches of Dr. Savage of the Local Government Board seem to discount that what we think would be very pathogenic to man represent a small figure.

1505. Experimentally, at all events, there is no difference observed between the organisms found in milk balls and those found in men?—No; I don't think so.

1506. I suppose a certain number of dairymen in Dublin send their cows to the country in summer to pasture?—Yes.

1507. Have you any power to follow up these cows?—No.

1508. As soon as they leave the city boundary they are out of your sphere of influence?—I have no jurisdiction, but I have sometimes gone out at the instigation of Sir Charles Cameron. In one of the cases of suspected typhoid Professor McWenney was examining the patient and the milk suspected, but he failed to get any positive results of bacilli of typhoid. He gave rather an alarming report that the milk was teeming with the tubercle bacilli. I went out and examined the udders, and Sir Charles Cameron suggested that I should apply the tuberculin test. I said to him that it was a long way out there and that there was no proper shed about in which to examine the cow, and that with all my goings in and out that I should need to take up my residence at the place. I said also that he had better wait till Professor McWenney had

made complete animal experimentation. Professor McWeeney told us, after his experiments, that he was dealing with acid fast bacilli, which was a different thing altogether.

1509. There are bacilli to be found in milk with a family resemblance to the tubercle which are not the tubercle bacilli at all?—Yes, and they have the character in common with what is known as acid fast bacilli.

1510. You say that this animal experimentation requires a long time to develop?—From ten days to three weeks.

1511. It is not quite certain till about three weeks—until the animal has developed the disease?—That is so.

1512. Then as regards the tuberculin test, have you any power to apply it if the owner objects?—None whatever.

1513. Don't you think it would be a valuable asset to your methods of inspection if you had the power to apply the tuberculin test willy-nilly, if you suspect a cow?—Yes.

1514. You think if you had that power it would facilitate your diagnosis; that is to say, you would be able to arrive at a decision more quickly as to what the animal was suffering from?—Yes.

1515. And lead to definite information as to what the animal was suffering from?—Yes.

1516. I see you say that in some cases the cows feed on the refuse of distilleries?—Yes, and that their viscera becomes degenerated.

1517. Sir JOHN LEWIS.—Is there a definite amount of alcohol in the grass?—I think there must be a modicum of it.

1518. Professor MATTAR.—As regards milk of the cows, would you suggest any pattern of pail to be introduced with the object of preventing contamination by dust and such things?—I think if we had machinery for milking it would be very effective. There is a certain form of pail that protects milk from dust.

1519. Do you think it is possible that if such a pattern were recommended it would protect the milk from contamination?—I don't think recommendations are worth the paper they are written on.

1520. You prefer pencil pailcases?—Yes. As a matter of fact, in our bye-laws we require that milk exposed for sale in the shop shall be covered with a muslin cover or something of that kind, so as to protect it from contamination. But that is only an indifferent means of protection, because very frequently I find that the person at the shop forgets, when attending customers, to replace the cover, and the milks gets contaminated. I think something of a more permanent character is needed.

1521. You stated to the Commission, I think, that the municipality should have power to take samples of all milk coming into the city, whether by rail, road, or sea, and subject it to a bacteriological examination?—Yes, and I would advocate taking samples not only of milk coming from the country, but also of samples of milk from the cow, and have them submitted to a bacteriological examination, so as to assist me in arriving at a decision as to whether there is tuberculosis in the herd.

1522. Mr. O'BRIEN.—You were saying there is less milk coming on the Great Southern and Western line now, because it runs through a creamery district?—Yes.

1523. How is that, in spite of the poor price which is being received at the creamery, as compared with what would be given for milk in the city?—It is due to the personal houses of the farmers that they don't send the milk to the city?—I think so.

1524. You don't think that the railway facilities, or want of railway facilities, the treatment of the cows returned empty, and the question of the fraudulent handling of the milk, prevent more farmers from supplying the city?—I think it would.

1525. But on the whole, do you think it is because they have not taken the question sufficiently into consideration?—I think it is, perhaps, that these farmers have not thought out the matter and how they might come into consultation with the people in Dublin who buy milk, and as they have the creameries at their heads they send the milk to them.

1526. Do the big Dublin dairies supply their milk from their own herds?—Yes, but I know the Lonsdale Dairy is altogether a country supply. They produce no milk themselves in the city.

1527. I suppose they would go to the country creamery districts just as readily as anywhere else if they could get a good, clean supply?—I believe so. As a matter of fact, I have it from the manager of the Lonsdale Dairy that their supply is running so short that they will have to start producing themselves.

1528. You don't happen to know what price they pay to the country people producing the milk?—The price is 7d. per gallon at present, and is delivered at the railway station in the country.

1529. At this time of the year that is not much in excess of the creamery price?—No.

1530. We were paying 6½d. at my creamery last month, and we add a penny for the returned milk—that would be 7½d.?—Yes.

1531. So there is no reason for the farmers to send out their milk to the cities when they can get as good a price in the creamery district?—I think that should keep it there.

1532. You have the milk coming in at the different termini at Dublin under your inspection to a certain extent?—I was explaining before that this is the duty of another Department, the food inspectors.

1533. But you don't look upon it as one of your regular duties?—No.

1534. You did repeat that you found dirty clothes?—Yes.

1535. So would it surprise you, from what has come under your notice, to get a letter like this: "I should like to draw your attention to the filthy state of the milk arriving in Dublin. Some time ago I was waiting at Westland Row for the arrival of a train. I saw the milk train arrive with the cans in open waggons. Few, if any, of the cans had tight-fitting lids, and one or two were covered with a piece of old mackintosh, in a filthy state. I took the lids off several of the cans and there was a regular crust of filth on the top of the milk"—Is certainly would not surprise me.

1537. You notice that he took the lids off the cans?—Yes.

1538. And that they were not fixed?—Yes.

1539. Do you think that the inspection on the arrival of milk in Dublin should come under your supervision?—I do.

1540. It seems to me just as important a matter as the inspection of cows?—Yes.

1541. How many inspectors have you?—One chief inspector and three ordinary inspectors, four in all.

1542. Are you the head inspector?—Yes, under Sir Charles Curran.

1543. Sir Charles, I suppose, has not a great deal of time for inspection?—He might go out now and again.

1544. So that you may say he is not an inspector?—Not in the sense that he goes round making inspections. He is the court of appeal in these matters.

1545. You, too, cannot spend a great deal of your time going around?—No. The course I adopt in regard to the inspection of dairy yards is this: I get a report to go into a certain district in Dublin to inspect dairies in dogs; sometimes I have three or four reports in the week, and this brings me into districts in Dublin where I also inspect the dairies and slaughter-houses. On such days I go out specially with the chief inspector to visit the dairy yards and do the other examination.

1546. Mr. James Collins is the registrar of dairies and chief inspector?—Yes.

1547. Does not the registration of dairies occupy a good deal of time?—There is not much time wasted in the registering of dairies now. Just at the beginning of the year, for the first month or two, we are kept busy. I think that instead of sending out registration forms, as is done at present, to people who have been registered, it should be their duty to come into us. But Mr. Collins adopts the other course.

1548. That means that a certain portion of his time is taken up by this registration?—Yes.

1549. And that leaves less time for inspection?—Yes. As I said, during the summer months we have to give a great deal of time to registration, when every man who has a field or a few blades of grass generally arrives at the office of a cow and becomes a dairyman for the time being, and we have to look after these to see that they are registered with us.

1550. So that registration then does take quite an appreciable time?—Yes, it takes up a good deal of time in January, June, and July.

1551. You have three dairy inspectors and yourself?—Yes.

1532. Are these qualified men?—They have passed the examination of the Royal Institute of Public Health as Sanitary Officers.

1533. Prof. MERRIAM.—Are these in addition to the others associated with you in the inspection of slaughter-houses?—Yes.

1534. Mr. O'BRIEN.—Is it not your duty to inspect the dairies and cowsheds, the aerial cows, the workers, and the markets where the cattle are sold?—Yes.

1535. And the slaughter-houses?—I do that; no one else is concerned in that work.

1536. According to your statement here you say "the following returns show the inspectorial work for the past three years." I take 1910 because the return for 1911 is not up to date?—Yes.

1537. You have inspected 7,323 dairy yards?—Yes.

1538. And dairy and milk shops numbering 13,376, and five of you have to do all these?—Yes.

1539. Can you inspect adequately 13,390 dairies and milk shops, besides slaughter-houses, milk employees themselves, and occasionally drop in at the railway stations?—Yes, in twelve months, and a restricted area.

1540. Your inspection has been limited, to a great extent, so far as the dairies and cowsheds are concerned? During half the year, are the cows not on the field?—Yes, but it does not follow that because they are on grass there is no inspection to be made. Because when old stock is being sold, and new stock is being purchased, the animals are left in the dairies and sheds for several days. So that even although cows are not actually there all the time, the premises must be kept under observation, with the possibility of the cows being brought in.

1541. Now, you state in your evidence that you try to get round and inspect the different dairies once a fortnight?—That is, roughly speaking, what takes place.

1542. I work that out that five of you would inspect about 94 or 95 dairies and milk shops per fortnight all the year round?—Yes.

1543. Each of you?—You need not put me down among these inspectors.

1544. Then practically the whole work is done by the three inspectors?—Yes.

1545. That would make the inspection still larger, because you would have to divide the number between three or four, instead of five. So that they would have over a hundred of these places to visit, as well as to inspect the cows generally and the slaughter-houses?—They are not concerned with the slaughter-houses; I do that myself.

1546. Do you think that these four men can each inspect 90 cowsheds and dairies and milk shops in a fortnight?—Yes, easily, and I don't think they would be guilty of excessive duty.

1547. I see that 12,316 is the number of visits made?—Yes.

1548. It seems to me that the inspectors must be always on the ground from morning until night, from year's end to year's end?—We are.

1549. You think you have got a sufficient number of inspectors?—We had four, and Sir Charles Cameron, who thought the number excessive, reduced the number.

1550. At all events, you do not feel that you are under-staffed at present?—I have always claimed that we should have at least one ordinary inspector for each of the four districts in Dublin, such as we had for years.

1551. You said that thirty or forty years ago dairy-men kept a large herd?—Yes.

1552. And you are of opinion that the getting of bigger men with more capital would be likely to produce better conditions?—Yes.

1553. From the point of view of cleanliness, you don't know what was the state of the milk in those days?—No, but I know what the condition of the dairy yards was twenty or thirty years ago. It was characterised by a huge heap of manure, that was not removed, as now, two or three times daily, but was allowed to accumulate. There is now no such thing in a dairy yard. I allow no dairy yard to have more than a couple of days' manure in the yard.

1554. You think that at present the dairy cows kept by the suppliers in Dublin are usually kept by smaller men?—Yes.

1555. Would you advocate herds being larger, and being kept by one man, or one company, and kept entirely outside Dublin?—No, I would not advocate putting out dairy cows from Dublin at all.

1556. Why not?—I think if you want proper inspection you must have cows within a restricted area. If you have them out in a large area you can only have your inspection once, twice or three times a year. What has been the history of London in this matter? The County Council put out the dairy cows, and the result is that the supply has very much fallen away, and the County Council are now almost inviting them back. If the cows go to the country districts, you cannot have them inspected frequently.

1557. I was thinking of a place where you would have a central dairy, a central supply from outside—say, in the Phoenix Park, or a pasture district like that. Some central place with up-to-date machinery, like Glasnevin farm, that would be easy of access?—Yes, without hesitation I say it would be a good thing. If we could get some place like the Albert Model Farm, Dublin, we would be well off.

1558. You would not advocate removing dairies from Dublin to a place three miles out?—No, except as you indicate, into definite districts where frequent inspection could be made.

1559. I meant that, because I gather that the worst town dairy cows are sent to the country practically free from inspection, and the milkers have not facilities for cleanliness, and, in fact, their milk is sometimes produced under the dirtiest circumstances?—That is so. Indeed, the poor men that go out in County Dublin to milk sleep in houses one would not put a good dog into. I have seen them housed under the worst possible conditions.

1560. Dr. MOONHEAD.—I gather that the milk trade is not in a very flourishing condition, and not very profitable?—No.

1561. I see that you estimate a profit of 2/4 per week per cow?—If you look at the prices of my evidence, you will find that it is less. There are two sets of figures. One is from the President of the Cowkeepers' Association, and to support his view that his business was running at a loss, he showed me the result of a chartered accountant's investigations, in which his trading for the six months showed a loss of £111, and that included the last six months. He has a big farm outside the city, and it is not for me to say whether or not he was putting too much value on the grass land. The amended figures were from another source, and that other source, it occurred to me, was considerably more reasonable, for I cannot possibly consider that the dairy proprietors of Dublin are such philanthropists as to be trading at a loss.

1562. The CHAIRMAN.—But circumstances differ, and he may have been dealing with a period when fodder and other stuffs were very high?—That is so.

1563. Of course all these things are governed by local circumstances and prices which fluctuate from year to year?—That is so.

1564. I think it would be rather difficult to generalise, from the experience of one year, as several factors operate both as to the supply of fodder and the demand for by-products, and all those would have an effect on the economic conditions under which milk was produced?—Yes, it would.

1565. I think we cannot arrive at any definite conclusion from the series of figures obtained under these circumstances?—That is so.

1566. Dr. MOONHEAD.—Do you consider there is a sufficient milk supply for the demand?—No; I would rather see more of the genuine article and less tinned milk.

1567. That shows there is not a sufficient supply?—Yes, and the unfortunate people who have to take the tinned milk are the poor women with children. It is made up, I believe, of skimmed separated milk, with the addition of sugar, and you cannot have healthy children on food of that kind.

1568. When an animal which is not clinically affected with tuberculosis, and is otherwise healthy, reacts to the tuberculin test, your suggestion is that the animal should be segregated and perhaps a calf taken from her?—Yes.

1569. Would you suggest the possibility of making that animal immune?—Yes; repeated inoculations of tuberculin.

1570. Would not that be a great saving?—Yes.

1571. Prof. MERRIAM.—Do you think that the application of tuberculin would render the animal immune from tuberculosis?—I believe that it has a tendency to increase cessation of existing lesions.

1591. Do you know of anyone, at any time or in any country, who said that tubercula is an immunising agent, or even causes healing?—Yes, I think so; but I have never made the experiment myself.

1592. We are speaking of the tuberculin used by the veterinary profession?—Yes.

1593. Sir JOHN LESTRAIKE.—Are you aware of the fact that there have been very extensive freeds in the export of valuable stock to the Argentine by some veterinary surgeons in England, who have learned that a small dose of tuberculin will produce for a time, apparently, absence of reaction?—Yes.

1594. And when these animals were examined after importation by the Argentine authorities, they were proved to be tubercular.

Prof. MERRIAM.—I must take exception to that. I deny absolutely that veterinary surgeons did such a thing.

Sir JOHN LESTRAIKE.—I did not mean to say anything derogatory of veterinary surgeons. I meant someone with veterinary knowledge. I withdraw.

Prof. MERRIAM.—Is it not a fact that a prior injection of tuberculin may give the animal immunity to reaction for a short space of time, and that a second dose may not give a reaction?—Yes. I know that as a matter of fact.

1595. Prof. MERRIAM.—A sufficient length of time does not elapse between the period that the animal leaves England and arrives in South America for it to lose the immunity to tuberculin?—I cannot say.

1596. The question that has arisen in the Argentine is this—they complain that the animals which have been imported into the country have, when they arrived, reacted. This is the explanation, and I rather take exception that it should be implied that it was a veterinary surgeon.—

Sir JOHN LESTRAIKE.—I withdraw that. I did not intend any aspersion on the profession.

Prof. MERRIAM.—The explanation is this. Some one may have given the animal a dose of tuberculin prior to the official injection. If a sufficient length of time has not elapsed between the two injections for the effects of the first to pass off, then the action of the second dose is masked. No reaction occurs, and the animal may be passed as sound. During the sea voyage the effects of the tuberculin have passed off, and then on being re-applied in the Argentine the reaction occurs. And to emphasize that point, I may mention that it was recognized that the same thing was being done in the case of cattle passing between Germany and France. When the animals were slaughtered at the abattoirs, it was found that tuberculosis was more common than the tuberculin test made on the frontier had led them to suspect. The animals had been previously injected with tuberculin, and hence the failure of the tuberculin test on the French side.

1597. Dr. MOOREHEAD.—I did know that there was a way of making them immune, but was the immunity to be made permanent?—Witness.—I was under the impression that repeated doses of tuberculin would do it.

1598. Miss McNEILL.—With regard to the question of compensation mentioned some time ago, you thought that the compensation should be increased?—Yes.

1599. Would you give full compensation to a owner-keeper whose premises, for instance, were not in a

hygienic condition?—When you are going to deal with all forms of compensation you have to be very careful as to the conditions under which you grant it. You ought to be certain that the man used all possible means to see that he bought a healthy animal, and if he has not used all the means at his disposal, I think that ought to be taken into account. If the animal is put in a dirty house he should not get the same consideration as the man who housed it properly.

1600. It has been said that in some French Departments there is a regulation requiring that vendors who have been convicted of selling dirty milk should have the conviction displayed in their windows, and the date at which the conviction was made?—I am afraid the British public would not stand that.

1601. Sir JOHN LESTRAIKE.—In your draft of evidence you give on page 3 a total which you say is taken from some work of Surgeon-General Edgar Flinn—the number of gallons of milk brought over the four principal railway lines?—Yes.

1602. 1,148,000 for 1904. That is correct as to the amount that came in for that year?—He says that in his report.

1603. Is there any reason to think that last year it was more or less?—I think at present there is less, until the producers get over the enforcement of the Dairies and Cowsheds Order. In Wicklow and Wexford a number of people have given up milk production, because they are afraid of prosecutions, and have not the money to put their premises into the order that would be requisite.

1604. When you say less, would the decrease be such as to materially affect the question?—Yes, because I have it from several of the large milk vendors in Dublin that they have had the greatest possible difficulty in supplying their customers for many months past.

1605. A large quantity of milk comes up by train untested?—Yes.

1606. Are there milk-testing societies in the creameries?—I think that is done under the auspices of the Department of Agriculture.

Mr. CAMPBELL.—We will produce evidence on that point.

1607. Lady EVERARD.—Is the milk supplied to the Dublin Hospitals from the country liable to inspection?—I am glad you have asked that question, because the doctors are talking about tuberculous-free milk, and there is no one in the hospitals to ask this question.

1608. Sir JOHN LESTRAIKE.—We often ask the question, and we are told to mind our own business, which is to attend to the patients.

1609. Lady EVERARD.—Are the cows that supply milk to the Sanatorium tested?—Not one of them.

1610. Sir JOHN LESTRAIKE.—The doctors, as a body, have advocated it. We do our best, but until the law comes in we can do nothing.

1611. The CHAIRMAN.—There is one other question—don't you think from your experience that it is extremely desirable that whatever Orders are made for the control of the milk supply, and all other questions appertaining thereto, should be free entirely from any ambiguity or doubt?—I do.

We are very much obliged to you, Mr. Watson, for your exhaustive and important evidence.

The Commission then adjourned to the following morning.

SIXTH DAY.—SATURDAY, 9TH DECEMBER, 1911.

The Commission met at No. 5, Upper Castle Yard, Dublin.

Present:—P. J. O'NEILL, Esq. (Chairman); Lady EVERARD; Miss MARGARET McNEILL; Sir JOHN LESTRAIKE, F.R.C.S.; GEORGE A. MOOREHEAD, Esq., F.R.C.S.; ALSC WILSON, Esq.; DERMOT O'BRIEN, Esq.; J. R. CAMPBELL, Esq., B.Sc.; Prof. A. R. METTAM, B.Sc., M.B.C.V.S.

S. W. STRANGE, Esq., Secretary.

Professor W. H. THOMPSON, M.D., examined.

1612. The CHAIRMAN.—You are, I understand, Dr. Thompson, Professor in the University of Dublin?—Yes.

1613. In what particular branch?—Physiology.
1614. Are you a general practitioner as well?—No, I do not practise.

1614. But, in pursuit of your investigations, you have formed an opinion as to the value of milk as food for the human subject?—Yes, part of my work is to touch the value of food stuffs, and I have devoted a good deal of time to that aspect of my work.

1615. I take it that you agree that for safe-guarding the public health it is essential that milk as a food should be preserved from infection as far as possible?—Undoubtedly.

1616. Is it, in your opinion, the greatest source of danger to the public health of milk of an impure character should be used as human food?—Yes, of the very greatest danger. I do not think you can substitute any other food for milk to take precisely the same place; I look upon pure milk as an indispensable article of human diet.

1617. Do you believe, from your knowledge generally, that it is used as extensively as its merits deserve, especially among the very young?—As far as I know, I do not think it is.

1618. Have you made any special study of the products which are produced from milk in a preserved state?—I have, but perhaps I might supply some of my remarks about the nutritive qualities of milk. Milk has a general nutritive value, which is commonly recognised in the virtue of its composition. It contains the essential ingredients necessary for life, viz., proteins, fats, carbohydrates (or sugar and starches), also mineral salts. In milk, the proteins are of a very special kind; they are what are known as phospho proteins, and you can get them only in milk. There are also specific differences in the milk proteins of different animals, so that humanised cow's milk is never exactly the same as human milk. This is, of course, a very elementary point, briefly necessary to bring forward. Then, again, the fats of milk are very specialised; that is to say, the fat of one animal is not exactly the same as that of another, and the food which is provided should, as far as possible, imitate the fat of the animal to which it is given. Ordinary butter fat is quite a complex thing. It is composed of three components that are found in all animal fats, viz., oleine (a liquid fat which is present in a large proportion, and is most digestible), also palmitin and stearin—two others which exist in a solid condition. In addition, it contains the specific fat of butter, viz., butyric. The fat in milk is exactly proportioned in the right degree for easy digestion, and in this respect is very difficult to imitate. Then the salts of milk are very necessary for the growth of animals, and it is a very remarkable thing that if one analyses the composition of milk in regard to its mineral ingredients, these are in exactly the same proportion as one finds them in the composition of the animal as a whole. It is all the more remarkable, because the glands which manufacture the milk have to pick out these mineral salts from a fluid in which they are far less concentrated than in milk. These, then, are the chief points which I would look upon as essential in estimating the gross nutritive value of milk as an article of diet. But, apart from all this, milk has a very subtle nutritive value which has been brought out in recent experiments. It has come to be recognised that there are articles of diet which produce nutritive effects out of all proportion to the amount of the article in that diet. Some of these belong to a class of substances to which the name "lipoids" has been given. Milk has certainly, to a considerable degree, this subtle nutritive property. But I may perhaps first mention some investigations which prove the general point about the striking nutritive effects of certain small ingredients of ordinary articles of diet. One set of these, perhaps the most striking, was made by the Chief Medical Officer of the Federated Malay States in connection with the disease known as Beri Beri. The rice used as food was suspected to be the cause. It was polished rice, not rice in the natural condition, and in the treatment of this rice the outer part of the grain, as well as the so-called germ or sprout, were removed. The beri-beri was cured by substituting the whole grain for the polished rice, or by adding to the diet of de-oiled rice an extract made from the discarded parts of the grain. Another set of quite recent investigations showed the same results in regard to milk. They were related in Cambridge, in the month of October last, at a meeting of Agricultural and Physiological Chemists, at which one of the subjects discussed was "Animal Nutrition." Animals were fed on what was calculated to be suitable and efficient diet, containing the required proportions

of proteins and fats, carbohydrates and salts; but they all lost weight, and many of them died. If, however, half a teaspoonful of milk per day was added to the same diet the animals lived and thrived, and increased their weight rapidly. Something essential was lacking in the considered diet, which was supplied in the milk, and it has been shown that in all probability it is the lipoids to which this effect is to be attributed. Definite evidence bearing upon the same point has, as a matter of fact, appeared. It was perhaps about a year ago that a preliminary announcement of this investigation appeared, but the full publication was only made two months ago. In the investigations I have just alluded to, animals were fed with a diet prepared from rice, in which the protein part of the rice was proportionately increased by the removal of starchy matter. To this rice milk was added, and the animals thrived upon it. The same diet was then treated so as to remove the lipoids and fats, when it was no longer able to keep the animals alive. Then the question arose, was it the fats or the lipoids that were essential to maintain life. Fats were added, but they produced no better results; then lipoids were added, and the animals lived. It was also found that butter added to the diet from which lipoids were removed did not keep the animals alive, but milk, or dried milk, was able to do so. Even dried skim milk was useful, but boiled milk was much less so. The boiling did not entirely remove the value of the milk, but it reduced it so much that only about fifty per cent. of the animals remained healthy; the others died or lost their weight. Furthermore, extracts made from dried skim milk and from boiled milk produced corresponding results, all pointing to the fact that so superior milk in its natural condition there are subtle ingredients which have a nutritive value far beyond their so-called dynamic value.

1619. Mr. O'Hanlon.—That is destroyed in the butter?—It remains behind in the milk.

1620. Sir JOHN LIVERMORE.—Does it remain in the butter-milk?—Yes.

1621. THE CHAIRMAN.—That undoubtedly is a most interesting statement. I take it that the result of these experiments goes to show that now milk contains certain ingredients as a food for human beings which, so far as science has yet determined, cannot be supplied by other means?—It cannot be conveniently supplied by other means.

1622. I am afraid that is knowledge not so generally possessed as its importance would seem to warrant. Have these investigations been published in anything but scientific journals?—No; the English ones have only been published in a very scanty way.

1623. Are the investigations still in progress, and is further research being made in order to confirm what already has been demonstrated?—Practically the whole of the physiologists in this country and elsewhere are at present engaged in working at problems of nutrition.

1624. Is any work of that character being carried on in the United Kingdom?—Yes, and even in Dublin.

1625. I am delighted to hear that, because it is a matter of such interest and value that I hope Dublin will participate in the investigations?—Several universities and colleges in Great Britain, where research is carried on, are at present engaged in problems of this nature.

1626. What you have said goes to prove in a very conclusive way how essential milk is as a diet. Have you any view as to its effect upon the constitution and character of the race that would be fed plentifully upon this particular food?—Well I have, but that comes in a this way. First of all, I think the race really is affected by the ability or inability of the mothers to nurse their children, and this is very largely at bottom a question of the nutrition of the mother. The mothers among the poor people are really not, I think, sufficiently fed to be able to nurse their children, and then I think the whole question of the nutrition of the working man has the greatest influence upon his willingness and capacity as a worker. In fact, I think the lack of interest in his work, what is called by some the laziness of the Irish workman, is largely a question of feeding him.

1627. So that the question has an intimate relation with the economic condition of the country?—Yes.

1628. And from your statement, it is apparent that the utility of the milk supply as a food for infants is a matter of extreme importance to the community at large?—It is, and I do not think its place can be taken

by anything else. There ought to be a sufficient supply of milk for infants and children. Mother's milk is the ideal, and after that cow's milk, as little tinned as possible. Everything that is done to cow's milk more or less damages its nutritive value.

1602. PASTEURISATION AND STERILISATION?—Yes. I should certainly say that pasteurising is the least harmful, and that it is a necessary proceeding under present conditions, but a better thing would be to get milk without having it pasteurised.

1603. That is exactly the point I wanted to ask you. Do you think it would be a more ideal state of things if milk could be preserved from infection and used without pasteurisation?—Certainly that would be the ideal thing as regards cow's milk; to get it pure from the cow, so that the cows were properly kept and milked.

1604. The statements you have made as regards to the experiments that have been carried on deal in some measure with the constituents of milk as a preserved state. Would you give the Commission more definite information regarding the properties of condensed milk or dried milk?—I do not think the condensed milk is a very good substitute for fresh milk. If milk is to be preserved for any time, I have no doubt that drying is a better process, and there is no doubt that for the distribution of milk to the poorer classes of people drying is better than pasteurising. Taking the conditions in which the poor live and have to rear their families, dried milk would, I believe, be better for them than pasteurised milk. The children thrive on it, and it is not liable to the same degree of contamination in the house as pasteurised milk, or any milk in a liquid form. It is ready to hand and it is easy to obtain. They can get a supply which does for several days, and it is not liable to the same house contamination as liquid milk.

1605. Sir JOHN LESTERMAN.—What do you mean by dried milk; under what name is it commonly known?—Dried milk. It is only deprived of its watery contents.

1606. The CHAIRMAN.—Has any experiment ever been carried out with the feeding of infants to determine exactly what proportion of its nutritive qualities are extracted from dried milk as compared with fresh milk?—Investigations have been carried on with dried milk in Leicester, Sheffield, Glasgow, and elsewhere, and the testimony of the medical officers is that this dried milk is, on the whole, a far better article of diet for the babies than pasteurised milk. In Leicester, it is now quite a rare thing for them to give anything else than dried milk.

1607. Sir JOHN LESTERMAN.—Where and how is it prepared?—Most of it is prepared by a process which is known as the "Just and Hatmaker process." This consists in running the milk in a small stream over a heated metal revolving cylinder and exposing it for an instant or two to a temperature of about 240 or 250 degrees Fahrenheit, whereby the water is nearly all removed.

1608. Miss McNEILL.—Do you think that it affects milk more than the boiling of it does?—It is claimed that this short exposure to heat has not the same effect as boiling, and those who use it on a large scale for infants have found it preferable to boiled milk.

1609. There is another kind of dried milk made in Cheshire, do you know it?—No.

1610. Do you happen to know anything about the experience of feeding infants with dried milk in Marylebone?—No.

1611. Sir JOHN LESTERMAN.—Are the organisms and spores destroyed?—It is claimed that that is so.

1612. Dr. MOOREHEAD.—It does not interfere very much with the nutritive value of the milk?—Apparently not.

1613. And is it ready for use with the addition of water?—Yes. I have used it at various times, off and on, for some months myself.

1614. In your own house?—Not exactly, but sometimes I live in the laboratory and use it, and I and my assistants found it very palatable. We used it for every purpose for which we would have used ordinary milk, that is, for porridge, tea, and cooking.

1615. Sir JOHN LESTERMAN.—Is it prepared in Dublin?—Yes; it is prepared in County Cork.

1616. The CHAIRMAN.—Have you any idea what the food produced from dried milk would cost per quart?—It is a little dearer than ordinary milk, but it is less costly than pasteurised milk. I do not exactly know

the cost, but a statement has been published by the Medical Officer of Health in Leicester, who says that it affords a saving of a considerable amount as compared with pasteurised milk. They had lost on every bottle of pasteurised milk that was sold, but now they can sell that to the poor people at cost price.

1617. Mr. WILSON.—Is it simply poured into the water, or is the water poured into it?—We found the best way to use it was to make it into a paste with water nearly boiling, and then to add some water afterwards, just like cocoa.

1618. Lady EVERHAM.—What amount of dried milk would be required to make a pint of milk?—That sample in my hand would make half a pint of milk. You could get quite a large tin of it for 1/8. There are three kinds made—full cream, half cream, and separated. This sample in my hand is half cream.

1619. Prof. MERTON.—Would a large tin approximately make a gallon of milk?—It is stated on the outside of the tin that 25 oz. make a pint. This comes out at less than a gallon for the whole tin.

1620. Sir JOHN LESTERMAN.—Are the enzymes preserved in that?—I hardly think so. It would be a very hardy one that would survive 250 degrees, even for an instant or two.

1621. So that the milk is not equal to ordinary clean, pure milk from a healthy cow?—No.

1622. Lady EVERHAM.—You look on it as next best?—Yes, for children living under the conditions in which the poor live, with the milk in danger of contamination.

1623. In fact, for the poor children you would prefer it to whole milk, owing to the conditions under which the poor people keep the milk?—Yes.

1624. Mr. O'BRYEN.—If a tin at 1/8 makes less than a gallon, it would be more costly than ordinary milk.

Miss McNEILL.—It would cost about 5d. or 6d. a quart.

Mr. O'BRYEN.—Poor people buying small quantities pay quite 5d. a quart. Is that form of milk easily adulterated?—I think so. That is the chief danger.

In Leicester, they have an additional amount of sugar added in the course of preparation of this milk for babies. This is a sample of the half cream dried milk direct from the factory at Guildford, Surrey. The Leicester milk is sweeter.

1625. Prof. MERTON.—What kind of sugar is added?—Ordinary cane sugar.

1626. Mr. O'BRYEN.—And you use ordinary boiling water?—Yes.

1627. If it was manufactured on a large scale, do you think it would be more open to fraudulent handling than ordinary milk?—No, I do not think it would. You would be dealing with a limited number of reliable firms, and the most I think that would be done would be to add sugar, or possibly artificial fat to separated milk.

1628. Sir JOHN LESTERMAN.—It would be easy to detect adulteration in that?—You could find out if sugar were added, and the kind of sugar; it would not be quite so easy to determine whether foreign fat were added.

1629. Mr. O'BRYEN.—As soon as one begins to get any article of food which is widely manufactured and widely used, you will find that people will try to get something that will add to the weight or bulk, and a sample like that which you have in your hand suggests enriched bones?—You might have phosphates added to it—for instance, heavy mineral salts—but they could be detected.

1630. I think that is a very important point?—I have thought of that.

1631. Do you think it would be easier to detect than the adulteration of butter by added fat? I believe it is very hard to detect added fat?—Yes. But up to 10 or 12 per cent., I think you could not detect added fat easily.

1632. You think it would be easier to detect adulteration in an article like that?—Yes, as regards the sugar, but not so easy regarding the substitution of butter fat by other fat.

1633. Mr. WILSON.—Are you aware whether any experiment has been made with regard to tubercular milk passed through that process?—I have not.

1634. Would the tubercle bacilli survive?—I think not.

1635. Miss McNEILL.—Have you seen a child brought up on dried milk?—No.

1663. I have seen one brought up with great care in the County of Kildare on dried milk, and the child developed rickets. I may say that all the hygienic conditions in the house were satisfactory?—One has to balance that case against thousands of others. Would you be prepared to guarantee that the child you mention was not fed on anything else?

Miss McNELLY.—Is this case I can.

1664. Mr. O'BRIEN.—What is the cause of rickets?—I do not think it is really known.

1665. Sir JOHN LESTRAIGNE.—Have any experiments been made on the feeding of young animals with this dried milk?—Only the children that have been fed.

1666. No regular laboratory experiments?—I do not think of any.

1667. The CHAIRMAN.—Is that dried milk to be had in Dublin at present?—It is to be obtained from the Junior Army and Navy Stores, and also from some of the chemists.

1668. Sir JOHN LESTRAIGNE.—It is not in common use in Dublin?—There is a chemist in North Frederick Street who appears to sell a fair amount of it. When our supply ran short we got it there, and he was selling it regularly.

1669. Mr. WILSON.—Would you be prepared to recommend dried milk in preference to pasteurized or condensed milk?—Yes, for poor people.

1670. The CHAIRMAN.—Because of the case with which it can be kept free from exposure to infection as compared to the liquid milk?—Yes.

1671. Miss McNELLY.—The poor people would not buy a tin at 3s. 6d.?—There are smaller tins which set about half the size.

1672. Mr. WILSON.—The demand would be for small quantities?

Mr. O'BRIEN.—I think that where the poor people could get an article that would last for a week, the tendency for the wage-earner is to give enough money to keep the house for a week, and I think that if he knew he could get milk for the week for a certain sum he would be much more likely to pay that down than to be giving a penny or two-pence every day. I know that is so in London. I went into the question there among the people.

1673. The CHAIRMAN.—Turning once more from milk in the dried to milk in liquid form, the Commission has had evidence of the danger to the public health arising from the germs of disease being conveyed by milk in a liquid form, and it has been suggested that it would be desirable that those who are engaged in purveying and handling milk should be subjected to the Widal test, to determine whether they are carriers of the typhoid bacilli?—It is rather beyond my line to express an opinion on that point, but I would agree on general lines.

1674. I take it that you would strongly support any proposition that science would suggest for the purpose of rendering milk immune to disease germs?—Yes, anything practicable.

1675. And you have already expressed the opinion that in order to secure the best possible results from liquid milk it should not be necessary to subject it to any treatment that injures its nutritive qualities?—Yes. It ought to be possible to obtain milk in a perfectly pure condition. I have no doubt it would add to the cost.

1676. Do you think that the addition to the cost would be compensated for in the properties that would be preserved in the milk, if its purity could be secured?—The cost would relatively diminish when the thing was on a proper footing.

1677. It is hardly necessary to go into the elementary principle of cleanliness. Of course, you subscribe to all that has been said as to the necessity of preserving milk from contamination of any kind whatsoever?—Unquestionably.

1678. And that even if the Public Health Authority had to impose some troublesome restrictions on the trade, it would be worth whatever inconvenience might arise to preserve the milk, as far as possible, from infection and contamination?—Yes.

1679. Sir JOHN LESTRAIGNE.—Have you studied the bacteria that are found in the milk?—They don't come within the scope of my actual work, but I think that lactic acid is not quite so harmless as many people suppose. I also think that it is a very great pity that so much of the milk of the country is turned into butter.

A certain amount of it must be turned into butter, but treating the greater part of it in this way is robbing the country of a nutritive article in its natural condition.

1680. Mr. O'BRIEN.—The nutritive qualities of milk are hardly realized throughout the country; I mean, it is considered necessary for children but not for grown persons. It is supposed in my part of the country (Lancashire) that when persons cease to be children they have got beyond milk?—My remarks apply more, of course, to infants and growing children than to adults who can more readily find substitutes.

1681. Do you think that it would be of great value if it were brought home to the children of the schools that tea, with a little milk colouring in it, is not nutritious at all, and that milk is?—Yes, without doubt.

1682. Because what I have noticed in the country is that just at the time when boys and girls get to maturity they leave off milk, and in the case of girls who have to do work they remain in the house and practically live on stewed tea, and become very delicate just at the time when it is most important that they should be fed. This is due to the fact, I think, that they have never been told that milk is such a fine article of diet for everybody?—It is largely through ignorance that the people use bread and tea instead of porridge and milk. It would be desirable that they should go back to the porridge and milk.

1683. We find that when we get them to use porridge they use the rolled oats, because it is so quickly made?—Personally, I sympathize with that. In my experience, rolled oats require to get twenty minutes good boiling at least, and thirty minutes is, I think, all the better. In the old days, porridge made from oatmeal never took less than an hour.

Mr. O'BRIEN.—I had rather a curious experience in my own district, which was commented on by the labourers and people generally as a most extraordinary thing. There was a labourer of mine who came on as rather a casual workman. He had been in the army and in America, and was a bad lot in a way. He got into a way of living almost on porter, and nothing else. From the time he came to work with me and could get milk, he gave up drinking porter and practically lived on milk. It astonished the other labourers that he could live on milk.

1684. The CHAIRMAN.—I take it that you entertain the view that it would be a wise and economic use of public funds to provide, as far as may be necessary, a liberal supply of milk for the labouring population?—I do. If provision could be made to supply them with sufficient milk at a price within their reach, it would be a most desirable thing.

1685. And it would be your desire, if it could be done, that the milk should be supplied as it came from the cow?—Yes.

1686. And so far as you are aware, all the processes to which milk is subjected at the present time have a detrimental effect on some of the properties which pure milk possesses?—Yes. I don't refer to straining and centrifuging and straining, but to condensing, sterilizing, pasteurizing, and drying.

1687. Prof. MERRILL.—Can you tell us anything of the comparative value of cow's milk and goat's milk?—are they equally good?—I think cow's milk would be preferable, but I should fancy that goat's milk would be a very good substitute.

1688. There is more cheesy stuff in the goat's milk?—I don't remember the relative composition of the two.

1689. Dr. MOORHEAD.—In order to have an adequate milk supply for the poor, would you recommend municipal depots?—I think there ought to be depots, whether owned by the municipal authorities or not. In any case, they should be under their control.

1690. The extensive manufacture of butter causes a scarcity of milk?—Yes. I have heard there is a scarcity.

1691. Mr. WILSON.—Will you tell us the actual places where you heard the scarcity existed?—In the Counties of Monaghan and Longford, but in the latter county I heard also that the tendency to sell milk in the creameries has decreased, as the price of butter has gone up.

1692. Dr. MOORHEAD.—It is estimated that there are a million and a half milk cows in Ireland, and ought not that to be sufficient for four and a half million people?—It ought. The milk cows of Ireland don't give the maximum supply.

1698. Mr. O'BRIEN.—The yearly average in Ireland is only 435 gallons?—There ought to be an average of 600 or 700. Winter dairying would probably get over a good deal of the difficulty.

1699. You have to produce 600 gallons in the year before you can make winter dairying pay. That is my experience, having gone into it?—That is what I understood was necessary—600 gallons in fact.

1700. Lady EVERARD.—Have you formed any opinion as to the value of registration or licensing?—No. Of administrative matters I have not any experience.

1701. Sir JOHN LESTER.—Have you formed any opinion as to the nutritive value of buttermilk as a food?—I think it is very useful indeed.

1702. Can you give us any information as to the relative values?—Only incidentally. Buttermilk contains a good proportion of protein matters and it contains the mineral salts. If fat were supplemented from other sources, it ought to form a useful article of diet.

1703. Prof. MERRIM.—What fat would you suggest as a substitute for the better fat that is removed?—There are various vegetable fats which can be mixed to give very nearly the right proportion of oleo, stearo, and palmito for easy digestion.

1704. Sir JOHN LESTER.—Did I understand you to recommend centrifuging?—Yes, to remove the gross impurities.

Mr. O'BRIEN.—I know people who keep a hand separator in their house to get rid of the gross matter.

1705. Mr. WILSON.—With regard to the value of separated milk, I have heard it stated in country districts that it is no use to feed children on. I take it that you think separated milk has a diuretic value?—Yes, though I know that the opinion in the country is that it is neither good for man nor beast.

1706. At any rate, you would not look upon it as useless?—I look upon it as an article that contains good materials, and it ought to be possible to utilize it as a food.

1707. And with regard to the subtle values you mention?—Yes.

1708. So long as it is not sterilized?—So long as it is not boiled, when these subtle values become reduced.

1709. Mr. O'BRIEN.—No pasteurized separated milk in order to destroy the typhoid germs would not it destroy the lipoids, because that is a very much lower temperature than boiling?—Yes.

1710. It is not lower than that to which dried milk is exposed?—But those preparing dried milk claim that the fraction of a second to which it is subjected does not injure it.

1711. Mr. WILSON.—Have you met with the brand Vicos milk, which was prepared under a heating process, the milk being passed over a hot surface for a very short time?—No.

1712. It was highly emulsified, and they were using this milk for supplying places in the tropics from Holland. I tried the milk myself a year and a half old and it seemed quite unaltered?—I think I saw that at the International Hygienic Exhibition at Dresden.

1713. Then with regard to the heating processes, you think that they all more or less injure the diuretic value of milk?—Yes, to some degree.

1714. Does the same apply to the churning of milk?—No, I do not think it does.

1715. Prof. MERRIM.—Not even frozen milk?—I do not think so; it remains to be proved. I am merely giving an opinion.

1716. Mr. WILSON.—Taking the ordinary market milk, assuming that it is good in quality as a whole, and that there is a moderate supply, would it not be dangerous to decrease the bulk of the supply by restrictions?—If your restrictions decrease the supply it is another problem which would have to be met, but I think it ought to be possible to supply enough milk out to supply it in good form. There are two different questions to be faced. One is the purity and the other is the sufficiency of the supply.

1717. Dr. MOOREHEAD.—You have given us a good deal of evidence about the diuretic value of milk; is it not used by doctors in the treatment of certain diseases?—Yes.

1718. And that would be an additional reason why milk should be pure?—Yes.

1719. Have you any idea whether there is any special supervision of the milk supplied to hospitals where these diseases are treated?—I have no knowledge on the point.

1720. Such a thing would be desirable?—I think so. 1721. Miss McNEILL.—With regard to the heat affecting the lipoids, do you know of any investigations have been made to note the effect on lipoids at a lower degree of heat?—I mean, practically, pasteurization?—None, that I know of.

1722. It has been only with regard to boiled milk?—Yes, but I should think the lower the temperature to which you subject milk the less harm you would do.

1723. An insufficient supply of milk in childhood has an effect on the individual in the adult stage?—Yes.

1724. Prof. MERRIM.—I take it that any temperature above that of the body to which milk is subjected has rather a deleterious effect on the milk?—When you get above the body heat you get on dangerous ground.

1725. If the temperature is above that of the body and below that of the death point of the bacteria there is a chance of increasing the bacteria in the milk?—It is quite possible.

1726. Lady EVERARD.—Do you consider that the cause of the bad teeth of children is due to want of milk? I mean the practice of feeding them on white bread and tea instead of milk?—I am sure their feeding is at the bottom of it. I am generally of the opinion, however, that it is more to be attributed to the loss of cereal foods.

1727. Miss McNEILL.—Mr. Wilson asked you about the value of separated milk. Do you think that the substitution of other fats would make separated milk useful feeding for children?—I should not recommend it for children.

1728. Lady EVERARD.—Not even with the substitution of other fats?—No; I should confine it to adults.

1729. But with the addition of fats, separated milk is a useful article of food?—It ought to be possible to make it a useful article for adults.

1730. The CHAIRMAN.—Is there any other point, Dr. Thompson, that you would wish to direct the attention of the Committee to?—I think not.

The CHAIRMAN.—Thank you.

Mr. H. C. BERRY examined.

1731. The CHAIRMAN.—You are an inspector under the Board of Works?—Yes.

1732. And it has been the custom of your Board to grant loans to landowners for purposes connected with agricultural development?—To landowners and tenants.

1733. And amongst the purposes for which loans are granted from time to time would be the improvement of farm buildings wherein cows are kept?—Yes, the erection and improvement—both.

1734. Can you tell us, from your experience, if this particular kind of improvement is developing or stationary, or whether it is less frequent than it had been?—It seems to be developing for the last two and a half years, particularly on the part of tenant-purchasers.

1735. You recognize that in the altered circumstances under which the tenure of land now obtains the occupiers are more diligent in developing the resources of their

farms and in improving their surroundings generally?—Yes.

1736. In what particular part of the country do you find this development going on most rapidly?—The South of Ireland for works generally, the Province of Munster, and the southern part of Leinster.

1737. In dairy districts, is much being done in that particular respect; because we have some information as to the way cows are kept, and apparently there would be need for improvement?—Since the Dairies and Cow-sheds Order was issued a large number of applications came from the dairy country—Limerick, Cork, Tipperary, and part of Kerry.

1738. You would, apparently, establish a connection between the putting into operation of these Orders and the increased number of applications made to your Board for carrying out these improvements?—Yes.

1733. Speaking generally, do you find that those who make applications for loans are willing to conform with the requirements laid down in this Order?—Not at the outset, but they are now more willing to adopt the regulations.

1734. Owing to the educational process going forward?—Yes; they see the results that have been produced by adopting these regulations.

1735. And you find they are more readily conforming to the conditions mentioned in the Order?—Yes, seeing the results produced elsewhere.

1736. They have proved useful object lessons which have been convincing?—Yes.

1737. Does your Board impose any conditions in regard to ventilation, light, and air space other than those embodied in the Dairies and Milk Shops Order?—No.

1738. You are satisfied that these are sufficient?—Yes, we have adopted them.

1739. You have adopted the standard laid down in the Local Government Board Order?—Yes.

1740. You insist on this standard being reached in all buildings for which you grant loans?—Yes, it is imperative.

1741. Are loans ever granted for the purpose of building creameries?—Yes, under the Land Law Act companies can obtain loans for building creameries.

1742. Must they be registered companies?—Yes.

1743. Has that been happily availed of?—No, only one company obtained a loan.

1744. Was only one loan granted for this particular purpose?—Yes.

1745. Was it in the North or South of Ireland?—In the North, and in the County Down.

1746. Mr. O'BRIEN.—Was the loan granted or asked for?—The loan was sanctioned, the work carried out, and the money issued.

1747. Was there only that one?—There were nine applications, but only one was proceeded with.

1748. The CHAIRMAN.—To what do you attribute the fact that such a limited number was proceeded with, as compared with the number of applications?—The loan in this case was approved by the Board, but I do not know why the other eight did not get the loans.

1749. Nothing with regard to your administration prevented them being carried forward?—No.

1750. The period for which loans are granted is fairly uniform over the entire country—22 years?—Yes, that is for a certain class of borrowers. Some loans are made at the rate of 5 per cent. for 35 years.

1751. These are for works of a permanent character?—There are three classes of works: island farm houses and buildings, reclamation or clearing land of rocks, and the planting of trees.

1752. When you speak of owners, do you treat tenants in whom lands are now vested under the Land Commission as you treat owners in fact?—Oh, yes.

1753. You regard them in the same position as owners in fact?—Except that the amount of the loan is restricted.

1754. Owing to the security?—Yes.

1755. But there is no difference in the conditions under which the loans are granted to the tenant owner under the Land Act and an owner in fact?—None.

1756. Have and except that the loan granted would not probably be as great?—Yes.

1757. I take it that is due to the limitation of security by reason of its being liable to an annuity?—Yes.

1758. I see that companies are not granted loans on quite the same terms as ordinary individuals?—No, there is a mode of repayment slightly different. In the case of the ordinary borrower the rate charged is uniform throughout; in the case of a company it diminishes. The payment consists of one-fifth of the amount of the loan and 3½ per cent. on the outstanding balance.

1759. What is the minimum loan granted by your Board?—£35 to tenants and £50 to owners.

1760. Again, speaking generally, what class of owners are applying for loans now as compared with, say, a decade ago—are they smaller or larger holders?—They are very mixed, but they are mostly tenant producers.

1761. What I want to get from you is this—whether or not the small holders of land now are more anxious to improve the conditions under which their stock is kept as compared with the interest manifested by them previous to their having become owners of their land?—Yes, I think so.

1762. The number is increasing?—Yes.

1763. And now you are dealing with a larger number of small valuations possibly than at any previous period of your administration?—Yes.

1764. Do you insist, when granting loans for the purpose of cow byres and such things, that there should be a sufficient water supply within easy reach?—The Board insists that the matter shall be investigated, and if it is reported that there is a sufficient water supply about the place, the Board does not insist on a special water supply being laid down to the house.

1765. What they do require is that they shall be satisfied that there is a sufficient water supply for the needs of the industry?—Yes.

1766. Do you insist in all cases on having a concrete floor laid down in the cow-byres?—No, some impervious floor is sufficient, concrete or asphalt. We should prefer concrete, but the price would be prohibitive in the case of small farmers.

1767. I suppose the difficulty of procuring suitable sand renders it difficult to have the work efficiently carried out?—Yes.

1768. Mr. WILSON.—But you insist on the floor being impervious?—Yes.

1769. The CHAIRMAN.—An impervious floor always?—Yes.

1770. Do you make any provision for drainage and manure pits?—We insist on a channel through the byre to take away the liquid manure and being carried, as required by the Dairies and Cowsheds Order, a certain distance away from the house outside into a covered drain or pit.

1771. You always insist on that?—Yes, that is specified.

1772. Is any provision made as regards the formation or location of a manure pit?—Not unless the borrowers ask for it.

1773. I expect the particular instances in which applications are made for this purpose would be very limited?—Yes.

1774. Have you ever, in your experience, found that any borrower made it one of the items for which the loan would be granted—do build a manure pit?—I don't know of any case where it was actually proposed to do so.

1775. Although it is sometimes afterwards carried out, in consequence of improvements generally?—Yes.

1776. Do you ever advance money for restoring existing buildings?—Yes, frequently.

1777. Re-roofing?—Yes, and remodelling generally.

1778. And when money is advanced for that particular purpose, you still endeavour to comply with the conditions laid down in the Dairies and Milk Shops Order?—Yes.

1779. And you also make it a condition that impervious flooring be laid down?—Yes.

1780. The same as if the buildings were entirely new?—Yes.

1781. Do the borrowers, as a rule, object to these conditions?—They did at first. They objected particularly to the windows, and some of them objected to the ventilators. They also objected to the dimensions of cubic space, which they considered to be in excess of the necessities.

1782. Of the actual necessities?—Yes.

1783. Do you find you are running up against prejudice in carrying out these regulations?—Some of them make objections.

1784. I can quite understand that, they have conservative ideas. Did they object to the windows on account of the expense, or for what other reason?—A large number of them appear to object to having any light in the cow house at all. Some object to the glazed windows, but would not object to an aperture closed by shutters. They seemed to object to the glazed windows.

1785. Mr. O'BRIEN.—Is that for the dairy cows or the fattening stock?—Dairy cows. We require some light in the ordinary cattle-house, but not so much as the Dairy Order requires.

1786. The CHAIRMAN.—Up to the present, Mr. Brett, you have been dealing exclusively with the loans granted for housing dairy stock?—Yes.

1787. And not with reference to the stock fed for the beef market?—Yes.

1788. The conditions there being somewhat different?—Yes.

1780. No conditions are laid down by the Local Government Board with regard to houses that are used for fattening purposes?—No.

1790. And whatever conditions are imposed are those which seem right and good to your body?—Yes. If a farmer wishes to put up a house it may be used partly for dairy cows and partly for other cattle, and we require them in that case to carry out the directions under the Dairies and Cowsheds Order.

1791. I see that in Limerick you have had a very large number of applications?—Yes, eighteen.

1792. Since May, 1909, you have received 115 applications?—Yes.

1793. 13 from Cork, 10 from Kerry, 8 from Tipperary, 7 from Galway, 6 from Roscommon, 6 from Down?—Yes.

1794. That would indicate that the majority of applications for loans emanated from the counties where the premises are in existence, and where the dairy industry is the main feature?—Yes.

1795. It is very gratifying to know that those engaged in the dairy industry are waking up to the necessity of improving the conditions under which their cows are kept, and your evidence, I think, is fairly conclusive on that point. What other conditions in the Dairies and Cowsheds Order do you find most objected to by borrowers?—First, they consider the space too much.

1796. Cubic air space?—500 cubic feet per cow, and they object also to the windows and to so many restrictions. They don't object to the floorings; usually they are willing to put down an impervious flooring of some kind.

1797. Could you state how many applications for loans have come under your notice which were not carried out consequent on the regulations contained in the Dairies and Cowsheds Order?—I think nine were abandoned by the applicants.

1798. Because of the conditions laid down?—Yes; they objected to it—nine out of one hundred and ten for cowhouses.

1799. That is a very small proportion—not eight per cent?—The objections they might make would be such as they might make in the case of other loans where the Board proposed to lay down conditions; for instance, the heated room in a house.

1800. But the amount of opposition you have met with in regard to this particular class of loans has not been generally greater than you have been confronted with in regard to other loans for different works?—No.

1801. Have you ever been asked to make any provision for the improvement of milk houses, or houses for the storage of milk?—I don't understand that.

1802. What I mean is this, do the Board make provision in connection with loans for the storage of milk previous to its being taken to the creamery, or where private butter-making is carried on?—In a few cases applicants included the building of the milk store—very few cases.

1803. Are conditions laid down in regard to that particular building similar to those in the Dairies and Cowsheds Order—for example, restrictions as to ventilation, impervious floor, and the dimensions of the house?—Yes; and certain restrictions as to drainage.

1804. Nothing beyond that?—No.

1805. No particular plaster prescribed for the dressing of the walls inside?—In a building of that kind the Board always provides for the plastering of the internal walls with ordinary plaster.

1806. Do you think, Mr. Brett, from your professional knowledge, that any modification of the Dairies and Cowsheds Order is necessary?—I don't think that any modification would be desirable. There are some points that might be made clearer.

1807. Do you believe that any modification of the conditions laid down would in any degree increase the number of applicants for loans?—No, I don't think so; I don't think it would affect the question at all.

1808. What I want to be perfectly clear about is this, that the conditions laid down are not prohibitive?—No.

1809. And don't deter those desiring to improve the housing of their dairy stock from carrying out improvements which they might be disposed to do under less imperative conditions?—No; I don't think so; it does not affect them.

1810. With regard to drainage, have you always been able to ensure a satisfactory outfall from the cow-

houses?—Very seldom can we get a really satisfactory permanent outfall. We have to make the best we can of the local circumstances.

1811. Does this increase your difficulty in dealing with the matter from the purely hygienic point of view?—Yes.

1812. I suppose this difficulty of procuring a suitable outfall for drainage increases the expense?—Yes.

1813. In some cases that is about the only difficulty?—Yes.

1814. Do you find borrowers willing to co-operate intelligently with you in making suitable arrangements for the disposal of sewage matter?—They rather object to making the drains and the outfall as far from the house as we would like.

1815. I take it that is largely on account of the expense?—Yes.

1816. Do you make that an imperative condition? What I mean is, would you withhold a certificate at the completion of the work in order not to enable the final instalment of the loan to be made if the borrower had not carried out the instructions regarding distance of the sewage?—Yes; it is usually made a condition before the final instalment of the loan is paid.

1817. Sir JOHN LESTER.—Is not sixty feet the limit?—That is a provisional limit; there is no authority under the Cowsheds Order.

1818. Do you insist on 60 feet at present?—Yes, if it is at all practicable.

1819. Mr. CAMPBELL.—Not because it is necessary, but because it is safe?—Yes.

1820. Lady EVELAND.—You referred to Article 6 of the Cowsheds Order, which states that "every cow-keeper shall provide and keep in or in connection with every cowshed in his occupation a supply of water suitable and sufficient for such purposes as may from time to time be reasonably necessary." Then you go on to say that you think there might be friction between your Board and the sanitary authorities, as "there does not seem to be a recognised standard laid down for the inspectors."—The difficulty we have is whether the Order really requires a distinct water supply to be laid on to the house, or whether the supply available on the farm suffices.

1821. The CHAIRMAN.—You fear there is some ambiguity in the Order?—There is an ambiguity about this particular article.

1822. You think that might be put in more precise and definite language, so that the borrower might know exactly what would be required of him in connection with this particular provision?—Yes, and not only that, but if you insist upon a distinct water supply being laid to the cowshed or dairy it might be beyond the means of a good many small farmers.

1823. I understood you to say a little earlier that it is only necessary that you should be reasonably satisfied that a water supply sufficient for the requirements of the industry about to be undertaken would be available?—Yes; that is the practice; but we are afraid that may not in some cases satisfy the local certifying officer.

1824. You fear that after your requirements have been met by the borrower the officer of the local authority may come in and require some further development of the water supply in order to come up to his particular standard?—Yes.

1825. And you would suggest that some general arrangements should be made, or some general provision should be inserted which would obviate the possibility of dual inspection and mixed decisions?—Yes.

1826. I can quite understand where the difficulty would come in, because, obviously, on these conditions, different views would be formed by different people, and if there were a conflict of opinion, naturally it would lead to friction?—Yes.

1827. The same applies to the distance of the measure pit from the cowshed?—Yes.

1828. Mr. CAMPBELL.—Mr. Brett says the distance taken is 60 feet, because it is safe, and because it is necessary. I am quite sure the Board of Works want to have this question settled definitely?—Yes.

1829. Mr. WILSON.—Has a case arisen?—Not in connection with the Board of Works.

1830. You want to prevent it arising?—Yes.

1831. The CHAIRMAN.—The Board of Works are anxious to carry out the Orders of another Board which is responsible for the public health, and it wants to have a definite rule laid down which will be a guide to them?—Yes; that is what the Board wish.

1833. LADY EVERARD.—I take it from your brief of evidence that you are also afraid that the local authority may take it too easy, and allow the measure near the cow-sheds?—Yes.

1833. Do you wish to have a definite space fixed?—Yes.

1834. Between the manure heap and the cow-shed?—Yes.

1835. Sir JOHN LESTANGE.—Are loans issued for cow-sheds or dairies or milk stores, supposing one of the three is asked for, without taking into consideration the condition of the other two? Suppose a loan is asked for the cow-shed, will your Board issue the loan for the object asked for without considering the condition of, say, the milk store?—Yes.

1836. Would there be any objection to their taking into consideration the general condition, because very often they would have opportunities of seeing whether, for instance, there was any milk store at all, and it seems to me almost useless to lend money for the building of a cow-shed if you have not a safe place to keep the milk in?—I don't suppose there will be any objection to that.

1837. The CHAIRMAN.—Would not the question of security come in, and is not your Board disposed to limit the granting of loans within certain restrictions as to valuations?—Yes. We are bound by certain restrictions as to valuations.

1838. The CHAIRMAN.—I quite see what is in Sir John Lestange's mind, but I fail to see how your Board can insist on having uniformity. I am afraid we will have to try and arrive at that by some other way than by the imposition of conditions by your Board.

Sir JOHN LESTANGE.—My idea was that there should be a minimum standard, that where there was not a place suitable for the storage of milk that that would be a matter for objection.

The CHAIRMAN.—This is a very complex question. In the first place, the loans are granted on the individual holdings on which the buildings are erected, and in some instances you might find that the occupier of a small holding might be resident on that holding, but that he might have a farm building on a large farm outside held under different tenure, and the result would be that it would be impossible for him to secure a loan on the security of that land.

Sir JOHN LESTANGE.—But supposing the cow-sheds were to be erected, do the Board see that in such cases there will be some safe place where the milk will be kept?—They confine themselves altogether to the improvements for which the loan is applied for.

1839. You do take into consideration the security?—Yes.

1840. And do you not take into consideration some other matters as to the suitability of the cow-shed. They won't give a loan for a cow-shed to be placed on the top of a mountain; could you not also see that some provision should be made for the storage of the milk?

The CHAIRMAN.—At the moment, I don't quite see how the Board can do that.

Sir JOHN LESTANGE.—It seems to me that they did take these things into consideration?—It is not the custom.

1841. They give the money irrespective of any other consideration but the actual building that is being put up?—Yes.

1842. The CHAIRMAN.—The only condition that you impose is that it is necessary for the holdings on which the loan is granted, and that certain improvements which are applied for shall be carried out?—Yes.

1843. There are no contingent conditions imposed?—No.

1844. Mr. WILSON.—The new Local Government Board Order came out in February, 1907?—Yes.

1845. You say that 115 applicants for loans have come in since 1907?—Yes.

1845a. It was about the time that the Order began to be enforced?—Yes.

1846. It seems to me that there must be very many thousands of sheds all over the country that are still unsuitable; can you suggest any reason why the number of applications for loans for this particular purpose is so small?—I think a good many of them had more or less availed themselves of it. I think, section 6 of the Order, and had their sheds passed by the local authorities.

1847. In other words, do you suggest that the fact that you were prepared to lend money in respect of these purposes would be more widely availed of if more widely known?—I think people know well enough.

1848. Mr. CAMPBELL.—What exactly do you understand by a dairy in this country?—It is merely a milk store in most cases. Of course, that is not the full meaning of a dairy.

1849. When a man asks for a loan for a dairy what do you understand?—We understand him generally to mean a milk store.

1850. Is the word dairy used here for cow-houses?—Never; cow-hyres.

1851. So that a dairy always means a place for storing milk?—Yes.

1852. Sir JOHN LESTANGE.—You have had a Board of Works Order headed "Cow-houses, cow-sheds, dairies, and milk stores"?—That is taken from the Local Government Board Order.

1853. Mr. CAMPBELL.—Don't you think this is very confusing to speak separately of dairies and milk stores when you understand them to mean the same thing? When a man asks for a dairy or a milk store you find no difficulty with regard to that?—No.

1854. Would you approve of a floor being set with ordinary cobblestones, and then grouted with tar and sand?—Yes. It would be impermanent.

1855. Do you find that people object to concrete, on the ground that it produces sepsis and inflammation in the cow's udders?—No; I never heard any complaint of that.

1856. Of course, a floor made of cobblestones, tar, and sand would not be so cold?—No.

1857. Are there any other materials that would not be so cold as concrete?—Some people use bricks and asphalt.

1858. Is asphalt much warmer than concrete?—It is, I think, in many places.

1859. Would you accept bricks that were not grouted with cement?—We would prefer to have them grouted.

1860. Would bricks be cheaper than concrete?—It would depend on the local price of brick.

1861. I think you said they object to the 250 cubic feet of air space?—Yes.

1862. Can you design a hyre that would give air space less than that which would house cattle comfortably and be easily cleaned, taking the very minimum?—Not very much less.

1863. Are you acquainted with the sizes of the sheds?—Yes.

1864. The cow will require three and a-half feet?—Yes, in width. You would require four feet for a walk, two feet for drainage, and eight feet for standing—that would be practically 49 square feet.

1865. Ten feet high, taking in the roof, would be 490 cubic feet?—Yes.

1866. If you tried you could not get it at much less than that?—No.

1867. So that 500 must be the minimum?—Yes.

1868. What do you mean by saying that in Article I. of the Board's notice to applicants for loans that calculating the air space, no space shall be reckoned which is more than fourteen feet above the floor?—That is the requirement of the Dairies Order.

1869. What is the meaning of that; is it that no space above that is any use? Do you agree with the words that in calculating the air space in a cow-house or shed, "in no case is any space situated at a higher level than fourteen feet above the floor to be taken into consideration"? Do you think this is correct?—We have to adopt it as correct.

1870. Do you say that the air fourteen feet above 500 is no use?—I think there would have to be some limit.

1871. You will agree that the space above fourteen feet high would be valuable?—Yes; so long as you do not reduce the width of the shed too much or the floor area occupied by the cow.

1872. Do you think if that was so they would give you the floor space?—Yes.

1873. Prof. MERRIM.—Arising out of Sir John Lestange's question, when you give a loan for the erection of a cow-hyre, do you make it an essential condition of the loan that the borrower should also provide along with that cow-hyre some place where milk can be stored?—No.

1874. Do you not think it would be a wise provision that you should insist that in addition to the byre to hold the cow, there should be some place where the milk could be stored, so as to prevent it coming into the house?—I do not know that the Board would have any power to insist on it.

The CHAIRMAN.—We quite recognise the point.

Sir JOHN LESTAGAGE.—You have power to insist on suitable ventilation and suitable security, and why not, in addition, require them to have a safe place to store the milk?

The CHAIRMAN.—All these conditions are to safeguard them as guarantors of loans, and they take no contingent liability.

Sir JOHN LESTAGAGE.—Indirectly they do, without meaning it, perhaps.

The CHAIRMAN.—They may say this is outside our province; it is for the Public Health Authority, and why should we interfere.

Sir JOHN LESTAGAGE.—I quite see the position.

Mr. CAMPBELL.—There is a further question, that large numbers of these loans are made for persons sending milk to creameries, and I think it is the practice there to send the milk right off.

The CHAIRMAN.—I imagine that is the custom.

1875. Mr. O'BRIEN.—The practice at this time of the year in a large number of creameries that are not wholly closed, but are working for three days a week, is that they take in the milk from the people and keep it in a store, but it is only as an act of grace. That was one of the points I wanted to put to Mr. Beet. Do you supply stock plans for cow-houses?—No; the borrowers, as a rule, provide their own plans.

1876. Do you have to sanction the plans as being suitable and right?—Yes; they have to be scrutinised to see that they are in conformity with the Board's requirements.

1877. Apparently, from what you said before, you don't insist on having a place provided for storing milk?—No; it is not made a condition of the loan.

1878. Do you make any condition that there should be a suitable boiler or fire for the scalding of cans and the cleansing of utensils about a dairy?—In the case of an applicant proposing to build a regular dairy?

1879. I am speaking of a small farmer who says, I want to put up a byre for my thirty dairy cows. Would you not see that he can boil a sufficient quantity of hot water for the purpose of cleansing his utensils?—No.

1880. Or a store for milk?—No.

1881. Mr. WILSON.—I take it that your requirements are the requirements of the Delices and Cowslade Order?—Yes.

1882. You adopt these regulations in bulk?—Yes.

1883. And where they don't lay down rules, you lay them down yourselves?—Yes.

1884. Mr. O'BRIEN.—You grant the loans so long as the security for the money is sufficient and the buildings are properly constructed according to your regulations?—Yes.

1885. That is to say, if I wanted money to put a dairy on the top of the Three Rock Mountain you would not necessarily refuse it?—We would certainly refuse it in a case like that.

1886. Would you have power to refuse it?—Yes; if the Board considered it unsuitable for the holding.

1886a. It would be in a salubrious position.

The CHAIRMAN.—It would be subsidising luxury.

Mr. O'BRIEN.—There might be a consumptive hospital up there. Do you lend money, Mr. Beet, for making effluvia pots?—Yes.

1887. Have you any standard plan of buildings, or do you simply lend out the money after approving of the plan submitted to you by the applicant?—If the Board are satisfied with the design and the security they will lend.

1888. Have the Board any standard to go on, or do they act according to the idiosyncrasies of the members of the Board?—They have no standard.

1889. Would they get ideas about that sort of thing from the Department of Agriculture; do they seek the assistance of the Department in any way in regard to these loans?—Not except in the planning of fruit trees.

1890. Do they ever submit the Department's plan of a cow-house to the applicant?—I am under the impression that a few have been built upon or modelled on them.

1891. If a person applies for a loan for a cow-house, you don't say, "this plan has been adopted by the Department, and the cost is so much, and this is another plan of the Department, which will cost so much," in order to give the borrower an idea of the cost and an alternative regarding the class of building?—If an applicant wishes and asks if we have a model plan the Board would probably tell him that they had not, but that the Board of Agriculture had.

1892. You offer nothing?—No.

1893. You also lend money for the making of manure pits?—Yes.

1894. And there again the Board has no idea how the manure pit should be made?—The inspectors have.

1895. What I mean is, that there is no standard laid down by you Board?—There is a model plan for the purpose.

1896. Are these buildings put up by you inspected during construction?—Yes.

1897. At stated intervals?—Yes, according as the applicant asks for an instalment.

1898. Only then?—That is all.

1899. It is not the duty of the Inspector to go down and see the foundations laid?—If the applicant informs us that he has the place ready an Inspector is sent down.

1900. Supposing no money is wanted until the work is finished, the building could go on from start to finish without inspection?—As a rule, the Board requires the Inspector to see in some time or other during the progress of the work, perhaps more than once.

1901. But not at definite stated intervals?—Not as a Clerk of Works or an architect would do.

1902. I think I am right in saying that the cottages put up under the Labourers Acts are inspected at stated intervals by the Local Government Board Inspectors?—I cannot say that.

1903. Anyhow, it is not your practice?—The cottages would be inspected as the work proceeds, as the applicant applied for instalments.

1904. It is only on the application for money that you inspect the houses?—Yes.

1905. It is not required that, in the first instance, the plans should be rightly placed on the ground and that the Inspector should see that that is done, and that when the foundations are laid up to the dry course, or something of that sort, the Inspector should see it again?—There are no periodical inspections of that class. Inspectors sometimes visit the work casually, if they happen to be visiting other works in the locality.

1906. It is not part of the regular routine of the Inspectors?—No.

1907. You have nothing to do with the cottages erected under the Labourers Acts?—No. Labourers' cottages are also put up by the Board of Works.

1908. But not under the Labourers Acts?—No.

1909. If I, as a farmer, wish to put up a cottage to house one of my labourers, you would grant money for that purpose?—Yes.

1910. And that building would be put up under your supervision?—Yes.

1911. But only as I wanted the money for it?—Yes.

1912. You have no plans for such things?—We have stereotyped plans for simple cottages.

1913. In connection with the cottage for which you have a plan, is there any provision made for the keeping of milk?—No; not in any labourer's cottage.

1914. Many of these labourers, as you know, probably keep a cow, and sometimes two, with the assistance of the farmer, on the road side, and a good many of them send their milk to the creameries?—Yes.

1915. Even when they have only one cow, they often send the bulk of the milk to the creamery—a gallon, say?—Yes.

1916. And that milk is sometimes kept for three days; in a labourer's cottages there is no provision for storage?—No.

1917. These cottages have a larder?—The simple designs contain three rooms, nothing more.

1918. And if I were to ask for money to put up such a cottage for a labourer, would you refuse to grant it to me if there was not a proper supply of water about that house?—No.

1919. You know that it is one of the great difficulties in any part of the country (Limerick) that these cottages are put up without any sort of provision for water, and that the woman of the house has to walk

half a mile or a mile for water. You would not refuse a grant on that score?—The matter is considered by the Board. I have never heard of a case being refused on that ground alone.

1919, Dr. MOONHEAD.—When a man makes an application for a loan, has he to submit a plan of his premises?—The owners are generally required to supply plans of the particular work contemplated.

1920, Prof. MERRILL.—It does not give an idea of its location relative to existing buildings?—No, except in the case of general works extending over different parts of the premises.

1921, The CHAIRMAN.—Has your Board, to your knowledge, ever refused a loan on an application for the improvement of the dairy premises consequent on failure to satisfy you that the water supply is adequate for the purpose?—I am not aware of any case.

1922, No difficulty arises in that way?—No.

1923, Sir JOHN LESTRANGE.—In the case of an application for a loan for a cow-shed, if the borrower does not provide for adequate drainage, you refuse?—Yes. There must be adequate drainage and outfall.

1924, If you do that, would there be any objection to adding that there should be some safe place for the storage of milk?—I don't think there would be.

1925, Mr. CAMPBELL.—What do you understand by a "dairy yard"?—A yard in connection with town dairies.

1926, Your definition of a dairy yard is a yard surrounding a milk house?—Yes.

1927, On the other hand, if you take this Order it is a yard around a cow-house, because it says "every occupier of a dairy wherein any cattle are kept." You don't usually keep cattle in a dairy?—No.

1928, In the Board of Works you have no definition of what a dairy yard is?—No.

1929, Mr. O'BRIEN.—Do you act at all with the Local Government Board—is there any exchange of ideas between the two Boards?—The only communication I know of relating to that Order was because so many farmers were objecting to the glazed windows, and the Board asked the Local Government Board what they meant by windows or apertures.

1930, Mr. WILSON.—You have power to make loans for the erection of buildings. Have you any power to grant loans for improvements under this Order?—Yes; that would come in.

1931, Is there any limitation to the annual amount that you are free to lend, for instance, if you got five hundred applications to-morrow, would you be able to lend the money to them all?—Yes, the Treasury would have to provide it.

1932, You are not dealing with a limited grant of so much a year?—No.

The Commission then adjourned to Monday, 11th December, 1911.

SEVENTH DAY.—MONDAY, 11th DECEMBER, 1911.

The Commissioners met at No. 5, Upper Castle Yard, Dublin.

PRESENT:—P. J. O'NEILL, Esq. (Chairman); LADY EVERARD; MRS MARGARET McNEILL; Sir JOHN LESTRANGE, B.C.S.L.; GEORGE A. MOONHEAD, Esq., F.R.C.S., ALICE WILSON, Esq.; DERMOT O'BRIEN, Esq.; Professor A. E. METTAM, B.Sc., M.R.C.V.S.

S. W. STRANGE, Esq., *Secretary.*

Lady DELEGATE examined.

1933, The CHAIRMAN.—You are good enough to take an interest in these questions which the Commission are enquiring into with reference to the milk supply for the poorer classes in this country?—Yes.

1934, And as a result of your observations, have you formed some opinion as to the method by which this can be most economically and efficiently improved?—Yes, I have been considering it.

1935, Do you believe that an improvement in the breed of goats would largely conduce to the production of milk for the cottagers throughout the country?—Yes; I certainly do.

1936, And I suppose you know something of the milking properties of the native breed of goats?—Yes, because I keep them myself to try and see what can be done.

1937, So that you can speak from practical experience of their milk-producing powers?—Yes.

1938, Have you also, with the object of improving the breed, introduced other breeds into the country for the purpose of increasing the milk yield from the goats?—I have.

1939, And have you discovered that the introduction of fresh blood and new breeds has been productive of the result you desire?—Yes. In the Ards most of the goats are crossed with my breed, and they give more milk and continue milking longer than the ordinary Irish goat.

1940, No effort has been made in the recent past to improve the breed of the Irish goat?—No.

1941, What foreign breeds have you introduced for the purpose of infusing new blood into the goats in this country?—The Swiss, the Angora, and the Anglo-Nubian; but the latter is not very successful.

1942, Have you found that as a result of crossing

with the other breeds, you have been able to increase the milk of the common Irish goat?—Yes; and the period of time in which they are in milk.

1943, That is rather an important consideration?—Yes.

1944, And does it in any way increase the size of the beast?—Yes; and they are short-coated instead of long-coated, which is much cleaner for milking purposes.

1945, Have they the same love of freedom as the Irish goats?—They do as well tethered as in the house.

1946, Of course you are aware that a strong prejudice exists against goats in the country districts, on account of their predatory habits?—Yes.

1947, You tell us you think that their milk-producing powers are not considerably restricted by reason of their being housed?—I have never housed them, but I was told by Mr. Holmes Pegler that it did not.

1948, It would popularise them if their habits were improved in regard to their neighbours' property?—A goat will always be a goat, but if they are tethered they can do no harm.

1949, Have you kept any record as to the yield of milk produced by the old unimproved animal and the new cross-bred type?—Yes; I have got them down here.

1950, Will you kindly give us the result?—An Anglo-Nubian, "Daisy," four years old, kidded 2th June, from 24th June to 15th November, 144 days, 312½ lbs. of milk, or 24 lbs. a day; an Anglo-Nubian Swiss, "Goldfinch," four years old, kidded 2d June, from 2th June to 15th November, 350 lbs. of milk in 165 days, or 24 lbs. a day; "Maidie," six years old, kidded April (by Berken Black Rock, ex-pure Irish), from 6th June to 15th November, 162 days, 385 lbs.

of milk, or 2½ lbs. per day. My man saw her milked the afternoon he bought her, and she filled a quart measure twice. When she came to us she fretted and refused to feed, and the following evening only gave 1½ quarts. There was a goat in my locality that my man saw milked, and she gave five quarts a day. In the Ards two quarts a day is not considered very good. Mr. Holmes Pegler thinks two quarts good, three quarts very good, and anything over that exceptional. "Pure Irish," five years old, kidded in May, 24th June to 14th September (and then the goat went dry), 192 days, 166 lbs. of milk, or about 1½ lbs. per day.

1901. That is the unimproved type of goat?—Yes; and she promised to be a good milker. No amount of feeding of the common Irish goat will peck her milking; it will increase the quantity she gives. Pure Irish goats milk well for three months, and are usually dry five months after kidding. There was another cross one we call "Mossie," and she only dried for one month in two years, having two lots of kids during that period. The owner lost her particularly well, and at a considerable pecuniary loss, but he acquired the milk.

1902. That is rather an ideal type of goat, one that would only be dry for one month in two years?—You can get them to milk all the year round, but they are better to be dry one or two months before kidding.

1903. One of the great difficulties of the goat supply is that it is irregular?—Yes.

1904. Of course, the ordinary cottagers do not keep relays of goats to ensure a continuous supply?—No. The foreign goats will have kids at various times of the year and not, like the Irish goat, at stated times. My goats had kids in January, February, March, April, May, June, and July.

1905. Obviously the crossing has been productive of very valuable results, in view of the fact that it is possible to peck the lactation period of a little discommutation is exercised?—I think so.

1906. Can you form any estimate of the relative value of goats' milk as compared with cows' milk?—No. But the British Goat Association have sent out a Table dealing with that point, and I can send it to you. I know that I have saved many babies in our village by giving them goats' milk when they could not digest cows' milk.

1907. You found the goats' milk gave satisfactory results?—Yes. There was a mother and baby in our district, both of whom were very ill, and they took goats' milk and recovered.

1908. Is it a common experience that children are brought up on goats' milk in your district?—Yes, a great many in our district.

1909. Are the people willing to co-operate with the object of improving the breed?—They are very keen about it; forty-seven goats are coming up every year to my yard, and sixty-one came this year.

1910. With the results that there has been a general improvement in the breed of goats in your immediate neighbourhood?—Yes.

1911. And the cost has not been so excessive as to feed the belief that similar results could be obtained in other districts with judicious management and a moderate expenditure of money?—Yes. I charge 1s. per goat, and I find that the people are in some cases inclined to give 2s. 6d. for the best animal.

1912. They are willing to make a financial sacrifice in order to secure the best results?—Yes.

1913. Has the breed of goats that is common in the district been the pure Irish goat, without any fusion of foreign blood?—Yes, as far as I know, until I started my herd eight or nine years ago.

1914. So that the results are making themselves felt in the neighbourhood?—Yes.

1915. Is the second cross found effective in the matter of improving the breed?—Yes; any Serica or Toggenburg blood in the breed improves it very much. May I read you an extract from a letter I received from Mr. Holmes Pegler with regard to goats?

1906. Certainly.—Mr. Holmes Pegler writes:—"But I now come to Professor Campbell's memo., in which there are one or two matters of importance that require to be dealt with. The first is with regard to the term 'pure breed.' The Department should understand that this term cannot be strictly applied to the goats of Great Britain, with one exception, the Toggenburg, which is so scarce, and fetches such high prices, that those can hardly be included in the reference. 'Secure a number of male goats of the best foreign breeds.' All our

best goats, and especially our best milkers, are a variety compounded of Serica, shoddy Toggenburg and Anglo-Nubian. Thus being the case, I hardly think that the principles of breeding that hold good with other classes of stock, in reference to first and subsequent crosses, could be applied to goats. In the stock to be introduced into Ireland, it should be less a matter of breed than of strain. Males from good milking strains, whose pedigree and the performance of whose dams or granddams can be traced in the British Goat Society Herd Book and Price Book, are the kind to secure. More Herd Book pedigrees, however, without the milking element in the blood, would be little use; and, for this reason, goats in the Anglo-Nubian class of the Herd Book are to be avoided." I went down to see Mr. Holmes Pegler the other day, and he wrote this out for me:—"Importation.—It will be time enough to talk of pure breeds when we can get the ports open once more for fresh consignments of Swiss goats to be brought into this country. I trust the Department will bring all the influence they can to bear on the Board in London to grant early facilities for this purpose. With a strict quarantine at the port of disembarkation, there ought to be absolutely no danger of the introduction of foot and mouth disease into the country."

1907. Have you had any experience of the produce of these cross-bred goats; do the people keep them for domestic use afterwards, I mean the female goats?—They do, in some cases; they cannot afford to rear the kids. The owner of the goat that gave five quarts sold the female kid to a butcher, and drowned two other kids this year.

1908. One can quite sympathise with the motive which obliges these people to follow that course, though it does not seem economical?—There ought to be steps taken to see that the female kids are reared.

1909. Dr. Moorman.—Can they be reared on oats?—I should not think so. My man told me that they rear the young ones on buttermilk. He says that a cow giving fifteen quarts can feed fifteen kids.

1910. The Chairman.—I think in the case of goats the period during which the milk is necessary is more limited than in the case of other animals?—Yes.

1911. When they get to five or six weeks old, they can go about and pick for themselves?—Yes. Around as the people feed their goats very well.

1912. What do they give them?—The cottagers' goats get 7 lbs. of Indian meal and 7 lbs. of refuse potatoes and hay a week. My goats get 4 lbs. of oats per goat per week, 4 lbs. of hay, and 4 lbs. of mangolds or turnips. The Irish goats will not touch oats. They get about 3 lbs. of Indian meal and 3 lbs. of potatoes a week.

1913. The Irish goats will not eat oats?—No.

1914. I am rather inclined to think that they must have learned these tastes from partaking in the food which is offered to the fowl and other animals about the cottages?—Yes.

1915. That would, in some degree, account for their failing to like oats?—Yes. The people could not give them oats; they give Indian meal.

1916. Dr. Moorman.—Is this during the milking season?—Yes.

1917. The Chairman.—Are these goats expensive to procure?—I have offered more for 2ls. Mr. Holmes Pegler wrote me:—"It seems an excellent idea to establish a Central Society of Ireland, with branches in various districts, and assisting these with a grant towards awarding prizes. I think such a society should work in close connection with, if it is not actually a branch of, the British Goat Society, as it will be from the latter that the Irish institution will draw its supply of male goats; and when breeders in England realise that there will be a ready sale for their male kids at a remunerative price, such stock will be saved, instead of being slaughtered, as is now frequently done. The price, 48s. ought to secure a good number of such goats at from 4 to 6 months' old." I have offered my young males at 2ls. simply to improve the breed in Ireland.

1918. Do you find any demand outside your own district?—I get more letters than I can answer.

1919. So that the light has been spread from your centre?—Yes. I am getting papers from Cork, Caran and elsewhere saying, in connection with local shows, "Goat bred by Lady Dunkerton."

1920. Do you think that the granting of prizes to goats at local shows would direct attention to the improvement and breeding of goats, and be an object lesson to the public

generally?—Yes. Judging by what has happened since the Belfast Show and the Dublin Show, I think they have had an enormous effect. I am constantly having letters from people as to what prices ought to be given. In Queensland, Mr. Bennett is about to give two goats as prizes. I think the people are taking this question up all over the country since the Dublin Exhibition. That seems to have given it a thoroughly good start.

1901. Mr. Winsor.—The Ur Broomfield Exhibition?—Yes.

1902. The Chairman.—Do you think it desirable that people should keep a record of their milk?—It would be a very good plan.

1903. They are careless in that particular, I take it?—Yes.

1904. I rather assume that local attention has been very largely concentrated on the improvement of the breed?—It has.

1905. I take it that comparisons are sometimes instituted between the milk of different goats?—Yes; and we are going to have a milking class in Belfast.

1906. That would also direct attention very prominently to the matter?—Yes. There is a Miss Palmer near us who has won £3 with her own goat. I wanted to get a kid from that goat, and she would not sell it at all, and it has raised the price of goats. I could get a goat before for £1, or 90s., but now I have to give £4, or £5. I went up to the mountains and bought three Irish goats to cross with my pure Toggenburg. I propose to cross their female kids, but to keep no males when the dam has been pure Irish.

1907. This is very gratifying evidence of the appreciation of the improvement that is going on?—Yes.

1908. Because, under other circumstances, these animals would not have a title of the value now attached to them?—No.

1909. Do you think it is possible to judge whether a goat will be profitable, from a milking point of view?—I suppose others would be able to tell that; and Mr. Holmes Pegler pointed out to me some features in connection with goats.

1910. You have made no observations yourself?—No.

1911. And you have not, therefore, determined what distinctive marks or features would probably indicate good milkers?—No.

1912. Do you think it makes a difference in the yield if the animals are milked at fixed periods, or irregularly?—I do not think it does. You cannot keep goats' milk. It ought to be used fresh. It gets very strong if it is kept at all. When my daughter was ill, I used to have the goat milked whenever she wanted the milk. I do not think it interfered with the yield. In Scotland, on the moors, we used to milk the goats six times a day, and I think they gave more milk.

1913. Sir JOHN LINTHACRE.—The taste of goats' milk is very pleasant?—They say so.

1914. Surely, you are distinguish it from cows' milk?—I have always told the children to milk the goats whenever their children wanted milk, and put it fresh into the bottles.

1915. When you say it gets strong, does that mean that it gets as sour as if it is kept in?—Yes.

1916. They make cheese from goats' milk?—Yes.

1917. How long is it since you first introduced these goats into your district?—About ten years ago.

1918. In the first instance, I take it, you were rather experimenting for your own information?—Yes; I made a hobby of it. I knew the late Eusebia Burdett Gault—she started the British Goat Association.

1919. Lady Eversham.—Do you think it would be possible to have a supply of new milk all the year round by judicious crossing?—Yes.

1920. Which goat would yield the best possible results for Ireland?—The Swiss Toggenburg.

1921. From the Swiss Toggenburg you would have kids all the year round?—Yes.

1922. You say you have them in several months of the year yourself?—Yes.

1923. Are the kids easily reared?—Yes.

1924. On cows' milk?—Yes. Mr. Holmes Pegler recommends that goats should be supplied on the instalment system. He states—"There is one important point which is not mentioned in Professor Campbell's memo., and which I venture to draw attention to. There are quite poor, but respectable, families who would willingly keep a goat if they had the means wherewith to purchase it. Such people require financial help. The British Goat Association is in six earlier years used to buy goats and let them out to the

cottagers on the instalment system—the latter paying 5s. on receipt of the goat and 5s. a month afterwards, until the total cost was paid, when the goat became their own property. A reference had to be given by the local clergyman or doctor of the parish in which the applicant resided, certifying to the applicant's means and respectability. It has worked out very well, so far, and the instalments were always paid, but the difficulty was to obtain the goats."

1925. You say the cottagers gave them Tibs, of Indian wool and Tibs, of potatoes?—Yes; and very little hay; in some cases none. They are tethered out on rough grass all day.

1926. Have you made any experiments with regard to Spanish goats?—No.

1927. You know nothing about them?—No; only the Swiss Toggenburg.

1928. Are they in any degree affected by the change from a warm climate to a colder one?—No.

1929. They do not seem sensitive to atmospheric conditions?—They do not like the wet, but the Irish goat does not like the wet either.

1930. Sir JOHN LINTHACRE.—Are they healthy, and easily kept?—Yes.

1931. They do not suffer from any diseases?—No.

1932. Have you any experience of diseases of goats; we have evidence of diseases being carried from places abroad, diseases of a certain type?—I am not quite certain, but I think it is only on the coast of Africa, Malta, and Gibraltar.

1933. You have known no ill effects of any kind from the use of the milk?—No.

1934. There is a common practice of having goats on the road with their legs fastened together—is that practiced in your district?—No, the country people tether all their goats.

1935. You think if they are kept banded they are not affected?—No. They do well on oats and hay.

1936. Has there been any estimate made as to the cost, approximately, of goats?—They cost the price of Tibs, of Indian wool and Tibs, of refuse potatoes and has a week.

1937. Has the question of keeping goats in certain districts been thought of?—No.

1938. That would, possibly, be profitable?—Yes. I suggested that in a place like Belfast a herd of goats should be kept.

1939. Mr. Winsor.—This evidence seems to be, on the whole, more optimistic than anything that has yet been put before the Commission in connection with the milk trade. It would appear from your evidence that the goat is eminently suitable for the new class of small tenant farmers, and to the labourers living in the new cottages?—Yes; now that they have got alternatives.

1940. The goat is eminently the milking animal for the small man?—Yes; and my husband thinks so, too.

1941. It was not owing to the shortage in the ordinary milk supply in your own neighbourhood that you took up the goat question?—No; it was for distributing and improving the goats in the South of Ireland. If we did not sell milk there would be no milk for the poor people in my district, as the farmers will not sell milk owing to the Dairies Order. In other districts, I am told, every drop of milk goes to the dairy.

1942. The first cross, you say, does exceedingly well?—Yes.

1943. There is no tendency for the Toggenburg blood to die out after three or four generations?—We have no experience of that yet.

1944. I gather that you run your herd of goats not only on philanthropic lines, but also that you make them pay expenses?—I cannot say I have found it paying. We sometimes sell goats to poor people at 50s. in the South and West, and then sometimes they sell us to pay carriage.

1945. The female goats of the Improved strain are, under existing circumstances, sometimes destroyed?—Yes, as well as the males. In my district one kid was sold to a butcher, and two were destroyed. I would have given £1 for each of the three kids. We eat the flesh of the male kid.

1946. The Chairman.—They attach no value, except to the skins?—No; I do not think it would be any use distributing female goats in Ireland.

1947. Mr. Winsor.—What are the Department of Agriculture doing in this matter; see they assisting you?—Nothing, except sitting in reply to a letter I wrote them that it would receive consideration.

2028. Sir JAMES LESTER—Is that long ago?—It is about three weeks ago.

2029. So far as you are concerned, you and the Department are not acting together?—No. I simply wrote to them and made suggestions, and asked Her Excellency if she would use her influence in the matter also. Of course, the breeders in England, who go in for prize, shag prize prices, such as £15 for a goat, which is absolutely ridiculous. What you want to get is a milking strain of a reasonable price.

2030. Mr. WILSON.—It is your idea that some organization, whether the Department or the suggested Goat Society of Ireland, should have goat premium stations in different parts of the country, the same as they have bulls, where the cottagers could take their animals for a small fee?—Yes.

2031. That would be your suggestion?—Yes, and to keep a strict record of the breeding, so that all males should be moved to a fresh station after two years; this is very important, to prevent in-breeding.

2032. Sir JAMES LESTER.—I take it that the fact of this milk smelling strongly after twelve hours would make it impossible for goat keepers to send their milk to the creamery?—Yes, they will not take it at the creamery.

2033. Lady EDWARD.—Have you got a pure male Toggenburg?—Yes.

2034. Are the females pure bred?—No; I have no pure female Toggenburgs.

2035. Are there any in England or Ireland?—There are some in England.

2036. Mr. O'BRIEN.—Do you keep your goats tethered?—I keep them in a grass warren; but I have kept them tethered, and they do just as well. I only put them in the house at night.

2037. When they are out in the warren have they a shelter?—Yes, but I do not think that it is of much importance, because the cottagers everywhere house their goats at night.

2038. Do you know anything about the goats in France—are they Toggenburgs or a Toggenburg cross?—I do not know.

2039. You do not know anything about the Pure goats?—No.

2040. You know they come through the streets in Paris selling their milk?—Yes.

2041. You don't know what goat that is?—No.

2042. The reason there is a difficulty in getting a Toggenburg is that there is a foot and mouth disease in some districts, and the Department will not allow the goats in?—They are not allowed to be imported into England.

2043. And what about Ireland?—The same thing applies. What Mr. Holmes Pegler suggests is that there should be a most strict quarantine at each side.

2044. You said, I think, that the Toggenburg was in your experience better than the Anglo-Nubian?—Yes.

2045. Is not the Anglo-Nubian supposed to have a richer milk?—I do not know.

2046. You do not know what the percentage of fat is in the Toggenburg?—No.

2047. I think they say that the Anglo-Nubian has a richer milk. There is no such thing as a pure Anglo-Nubian?—There are no pure Nubians.

2048. If you allow the kid to run with the mother does that shorten the period of lactation?—Yes. We consider that goats give milk for a longer period if the kid is taken away.

2049. And if there are two kids you can dispose of one, and bring up the other, and at the same time milk it?—Yes. Around they tie up the udder, so that the kids cannot get at it.

2050. You do not think that it stops the period of lactation?—I have never found it so.

2051. Because in my part of the country the common belief about the Irish goat is, that if you let the kid run with the mother at all it stops the period of lactation?—I never heard of that.

2052. You spoke of the allotments—I suppose you meant the labourers' cottages, with an acre or half an acre attached?—Yes.

2053. Would half an acre be sufficient to bring up a goat with a short tether on?—Of course, they would have to get extra feeding.

2054. In the goat books they lay great stress on the fact that the goat must not get very much over the same land, for the reason that they will soil it?—I have never found it so.

2055. You find they do better tethered than running about spanielled?—I have never tried tying their feet.

2056. In one of the books I read it is said that by tethering a goat quite short, and only allowing it a yard at a time, the animal has no room to roam, and does not soil the ground?—No.

2057. So that you would recommend short tethering?—I think they do just as well short tethered.

2058. You spoke of killing and eating the goats?—Yes. We used to kill them and eat them up to five or six weeks.

2059. You have probably heard the theory that goats kept with cows will prevent abortion?—Yes.

2060. Do you believe that?—Yes. We had two cows one year that died from abortion. After that we tied up a milk goat in each cow-house, and there was no further trouble.

2061. You have not any opinion why that is so?—No.

2062. There is a theory, and I have no doubt there is a good deal of truth in it, that goats put on certain food on a plant called opogon, which is said to cause abortion in cattle?—I never heard that.

2063. You think there is something in the smell of the mammals?—Yes.

2064. The cattle that you speak of, were they and the goats turned out into the field together?—No.

2065. You do not recognize any distinctive marks about a goat for milking purposes?—No.

2066. If you were choosing a goat and did not know any thing about her, how would you examine her?—You would see that she had a good bag and teats.

2067. You do not look at what is called the scutcheon—the arrangement of the hair above the udder?—No.

2068. Sir Richard Porter has stated that they have a scutcheon mark in the hair above the udder, which is the same as in cattle, and he showed that the goat that milks best had this mark most strongly developed?—I have never noticed that.

2069. You have not made experiments in the amount of milk taken from goats by milking them several times a day, instead of milking them twice?—No.

2070. You know that in most parts of the country they believe that goats can only kid at one stated time?—Yes.

2071. That practically the females come into service in October and November, and only then?—That is so with the Irish goat—November and December.

2072. You could not breed from them at any other time?—It is very rare.

2073. But the first cross with the Toggenburg enables you to breed at any time?—Yes, but making in April and May is uncertain.

2074. You found in your own experience that you could breed at any time?—Yes.

2075. That, of course, is a most important point about the goat?—Yes.

2076. How long do they run before they kid?—Five months.

2077. Do you take two kids from the mother in a year?—No, only once a year.

2078. You have no experience as to whether having three kids in two years would weaken them too much?—I have never heard anything about it.

2079. Have you gone into the actual cost; can you tell us the cost of keeping a goat?—I have not gone into that.

2080. What is the exact quantity of food you give?—Four pounds of oats per goat per week, four pounds of hay, and fourteen pounds of mangolds, turnips or cabbage, and then they are out on the grass, you know.

2081. Do you find it makes much difference in the taste of the milk on what they are fed?—I do not drink goats' milk.

2082. I have been told that it would make a considerable difference in the taste of the milk on what they are brought up?—I heard so.

2083. Speaking of the feeding of goats, I find in Mr. Holmes Pegler's book on the "Advantages of Goat Keeping," the following:—"Potato parings, apple peels, cabbage leaves and stalks, potato haulms, beet and peas and the pods of the latter, lettuce run to seed, roots, cut grass, weeds, such as milk thistle, dandelion, &c., ivy, leaves of trees, in fact, almost everything found in a garden, besides moor and heath chestnuts, will readily be consumed by these animals." I think they will consume almost anything?—Yes.

2084. The question is whether that affects their milk. I have heard that rhododendrons and yew are deadly poison to goats?—I have lost several goats myself from eating rhododendrons.

2054. **Sir JOHN LESTER.**—They will eat them greedily?—Yes.

2055. **Mr. O'BRIEN.**—You would be in favour of a system of premiums?—I think it would be a very good thing.

2056. Why do you say you think it would be a mistake to have well-bred animals distributed?—It would cost a good deal, and I do not think that it would do much good. I think the market do better.

2057. What is the cross like between the so-called pure-bred Toggenburg nanny and the ordinary Irish billy?—I never heard of it, and I have never seen one. The Irish billy is always long-legged, which we try to avoid, as they are easier to keep and cleaner with short hair.

2058. We have, I think, two or three goats in our district from an Irish billy, because the Toggenburg billy we had died?—So I heard.

2059. It would be rather interesting to see what would be the result in that way?—In breeding one does not like using a half-bred male. Another important point is the age for mating them. Mr. Holmes Pegler has written me on that matter (—"Age of Mating. There is one point in your letter in regard to age for mating which, though strictly correct theoretically, is hardly likely to be adopted, I fear, in practice. For exhibition purposes, and for those who can afford it, eighteen months is the right age, as you say, to first mate a goat, but this means that kids born in the spring of one year have to be kept in a maiden state until October of the year following, by which time some will be nearly twenty months old, and all this time they are bringing in no return. You say that the cottagers are in the habit of breeding their female goats from the kids at six months. This is, of course, to be discontinued, but I do not think much harm would accrue if this was extended to ten months as a limit; that would allow kids of March and April to be mated respectively in January and February. Twelve months would, of course, be better, but if this limit were made it would bring the month for service to March or April, when the rutting season is over."

2060. The reason for mating them at six months is that they only come in at that particular time?—Yes.

2061. If, with the Toggenburg cross, they could mate them at any time in the year, it would not be hard to induce them not to mate them until they were older?—Yes. The woman who got 47 in prizes for her goat would insist in mating the kid at six months. My gentleman could not make her believe that goats could be mated at any other time of the year than November and December. She thought if she missed the opportunity she would have had to wait until the kid was eighteen months old.

2062. **Mr. Wilson.**—Is she a cottager?—She has a £50 valuation.

2063. **Mr. O'BRIEN.**—What would you have to pay for a Toggenburg goat pure-bred?—I have paid £15 for one.

2064. And that is about as cheap as you can get them?—Yes. I do not think it is necessary to introduce pure-bred Toggenburgs. I think it would be good enough to have the good milking strain.

2065. **Sir JOHN LESTER.**—At what age can the kid find for himself?—At three or four months.

2066. **Mr. O'BRIEN.**—Do you find that the goats vary

in the quantity of milk they give?—Yes, I have noticed that they do vary, but this is probably caused by their not being dry for a sufficiently long time before milking.

2067. Would a very dry year like this summer affect the goats?—No; I do not think so.

2068. You think that the Toggenburg cross is well adapted to Ireland?—I think so.

2069. We found that two or three pure-bred Toggenburgs that were sent down to us died, but they might have been in very bad condition?—I have one or two that died, generally of liver disease. I bought one for £12, and she died after she had her kid, and the liver was growing to the side. The kids naturally were delicate, but one has turned out a splendid animal. One of the kids also died, like the mother, from liver disease.

2100. We had in our part of the country three Tully-Ho billys, and they all died. I think we have some progeny of one of them. I was wondering whether they were delicate, and not suited to the country?—No.

2101. **Dr. MOOREHEAD.**—Are the hornless variety the best milfers?—I cannot say, as I treat the heads of my kids with acid, when three days old, to prevent the growth of horns.

2102. Do you think that is necessary?—I think it is a very good thing, both for the people and for other goats.

2103. I take it that this goat milk is very universally used in your district?—Yes; the people said they would not put cow's milk into tea.

2104. Have you noticed any improvement in the health of the people in consequence?—Only in the cases I have mentioned, where goats' milk saved people's lives.

2105. Where you resuscitated the patients?—Yes.

2106. **Mr. O'BRIEN.**—Do you find it difficult to send goats by train?—No. I have sent them with a collar and chain.

2107. The railway companies charge a tremendous rate?—Yes.

2108. 21 6s. 3d., 41 5s. 4d., and 12s. I find charged?—They charge by weight; they have big heavy crates.

2109. **Prof. MERTON.**—You send them by passenger train, of course?—I suppose so.

2110. That also adds to the cost?—I suppose it does.

2111. **Mr. O'BRIEN.**—Do they stand travelling well; could you send them up by the ordinary goods trains?—Yes, and it is much cheaper to send them in a crate by goods train.

2112. Would they not suffer from want of water?—No. Goats are not good drinkers at all, and the thing is to train them up to drink more, as it would have a great effect on the milking qualities.

2113. Are they very tidy about water?—I find that they are very particular as to the water they drink.

2114. They drink just as cattle would?—I think so.

2115. **The CHAIRMAN.**—Are goats able to rear two kids?—Yes; I have one that reared three kids.

2116. **Prof. MERTON.**—You do not really believe, I suppose, that the male goat has any influence on the organism of cotigugous abortion?—I only know that our cows mislead, and that when we tied up the male goats with them, it never happened afterwards. I have heard this all my life.

The CHAIRMAN.—Thank you, Lady Dunleath, for your really interesting and important evidence.

Sir RICHARD BARTON examined.

2117. **The CHAIRMAN.**—Your interest in live stock generally is well known throughout Ireland, and among the other animals that you have been interested in are goats?—Yes. I have been greatly interested in Her Majesty's action in this matter; and, as a large pedigree breeder, my experience might be of some help in trying to assist in this great problem of winter milk, which has a great interest for us in the South of Ireland.

2118. Even in a district where dairying is so generally carried on?—Yes. Want of winter milk is a very serious matter; and bringing up children on bad tea and white bread is most injurious. Within the last month I got a dentist to examine for me the teeth of 130 children in a village school, and he reported that out of that number there were only four sound mouths in the lot. He attributed it almost entirely to the feeding; and in some cases there was objectionable matter coming out of their mouths.

2119. And poisoning the system generally?—Yes.

2120. If any epidemic came about, these children would be in a bad position to resist it?—Yes; that is so.

2121. Would you be good enough to give the Commission your experience of the breeding of pure-bred goats, and what you have done and proved in connection therewith?—I bought two or three males and some females, and I tried to interest the people in them; but I was not able to satisfy them that they will kid during the winter months. There is a Mrs. Cullinan, and she has a most remarkable record of goats kidding every month of the year, and that struck me. The great advantage is that these Toggenburgs will transmit that tendency to their kids.

2122. Have you been keeping the male goats in your herd with the object of improving the breed generally in the locality?—Yes. I am now speaking of the district of County Cork.

2123. And do you find that the cottagers are anxious to co-operate in anything that would improve the

breed?—Yes. I have put my goats in crates, and they are largely used. One shilling is charged for the service.

2124. Do you believe that if a scheme of that kind were undertaken by the Department of Agriculture it would be a great advantage?—Yes; but they should exercise great care in regard to the sire.

2125. Close breeding would, of course, interfere with their constitutional strength?—Yes.

2126. What has been the custom as regards the offspring?—I have the goats only for a year, and I have not sufficient experience to tell you; but I don't think the people will slaughter them. I think they will try to increase the number of improved goats in the district. Here is a letter from Lady Carbery's man, who says he has made very careful inquiries about the district, and could not find anyone who would sell goats, as everyone seemed to set great value on them.

2127. Mr. O'BERRY.—The people about won't sell them?—No.

2128. The CHAIRMAN.—It is obvious that they are appreciated in the district when the people refuse to sell them?—Yes.

2129. Have you got any female goats of the same breed?—Yes. Both of them had twins, and I had to give the kids the entire milk.

2130. Are the female goats pure-bred or Irish?—They are Anglo-Toggenburg. The original Nidman was brought over by the Honorable Berdett Coates, and she paid 150 guineas for it.

2131. You don't find that they are in any degree delicate or susceptible to change of climate?—No.

2132. Have you given them any extra care?—No; very ordinary care. When the cows go out I let the goats go out with them. They remain among the cows. In fact, I believe very much in the question that was asked awhile ago about the ewes. I believe they take it off the land, and it does not do them any harm; and they save the cows from the abortion in that way, by eating this plant.

2133. Have you got goats among your cow herds?—Yes, for a long time. During the summer I live in a

bangalow in Cork Harbour, and I bring some goats with me for my own supply.

2134. Sir JOHN LISTERLOVE.—You say you use the milk yourself?—Yes.

2135. It is palatable?—Yes; it is very nice.

2136. What is the average quantity of milk given, in your experience?—I don't think the Irish goat ever went to two quarts.

2137. But have you experience of the cross?—No; I have them only this year, and they are rearing their kids.

2138. The cross-breed gives a larger supply of milk than the Irish goat?—Yes.

2139. This increase in the milk supply is a great advantage to the poor people and to the district generally?—It is. I don't think the Department of Agriculture could spend money better in any way for the poor people than in bringing over new breeds of goats into the country. The male Irish goat is sometimes wicked.

2140. Is that the case in regard to the cross-bred goat?—I have three males, and I find them very quiet, I have never heard the slightest complaint about them.

2141. Mr. WILSON.—Would you confirm what Lady Dunleath has said—that they are specially suitable for the present condition in Ireland, amongst small farmers and labourers?—Yes.

2142. And in your experience, has the Department of Agriculture taken any action in regard to goats in your district—that is, in County Cork?—No, but I understand the Department propose, when restrictions are removed, to import a considerable number of good milking strains.

2143. The CHAIRMAN.—I think action is in progress at the moment?—I think the Department passed a resolution to buy a certain number of males.

2144. Dr. MCGEEHAN.—You don't bother your goats at all, you let them run through with the cows?—Yes, coupled.

2145. Does that cure them of their bad habit?—They don't do much harm; but in coupling, care must be taken to have proper couples and wethers, otherwise the stronger may choke the weaker.

2146. Sir JOHN LISTERLOVE.—Did you disperse them?—No. Half of them were naturally dispersed.

Rev. ROBERT BARKER, F.R.S., examined.

2147. The CHAIRMAN.—Are you pastor of Oldcastle and the district around?—Yes.

2148. And you are naturally familiar with the conditions under which most of your parishioners live?—I am.

2149. Is there a deficiency of the milk supply in your parish?—Yes, a very great deficiency.

2150. And in your experience the small landholders and cottagers, although they may be financially able to purchase milk, cannot procure it?—No.

2151. To what do you attribute that?—Well, from my experience, I should say it has arisen largely from the tenure of the land. In the old times, when the eleven months' system did not prevail, and when the auctioning of land was unheard of, it was quite possible for poor people to get a supply of milk, at least of buttermilk. Since the auctioning of the land began, and the eleven months' system was started, there has been a greed for land, and the poor man's cow disappeared. Previous to that period it was a very common thing for every man to have a cow, because he found it very easy to get accommodation for the feeding of it. But this dreadful hunger for land and putting up farms for auction has given the poor man no chance. It is now considered a great compliment if a man gets the grass of a cow from May to November at 2s. It is a great privilege to get this accommodation, and he could hardly get it if he was an outsider. That poor man has to spend at least another 2s. for hay; so that, practically, it means that a poor man cannot keep a cow under 210s a year, and he considers himself rather fortunate if he has that very questionable opportunity.

2152. In your opinion, the economic conditions under which the land in your district is held have largely increased the difficulty of keeping up a sufficient supply of milk for the inhabitants?—Yes.

2153. Is it at all customary for farmers to keep a dairy for the purpose of supplying milk to anyone who likes to purchase?—Not in the outlying district. In the town, the farmers might send in a cow, but in the outside districts it is not done.

2154. It is not followed as a commercial pursuit, the vending of milk in small quantities?—No.

2155. Given in the town of Oldcastle, have the inhabitants experienced difficulty in procuring a supply?—They have enough for the less; but they find it impossible to provide for their children, especially in the winter season.

2156. Is it your opinion that milk, as a food, is not so extensively used as it should be, on account of the difficulty in procuring it?—I believe that the reason milk is not more freely used is because of the impossibility of getting it. The people know very well the value of it, and the necessity of it, but they cannot get it.

2157. It leads to the use of other foods that are injurious to the development of the race; for instance, the use of porridge for children is not so extensive as it might be?—It is not now.

2158. They don't think of using it as food at all now owing to the scarcity of the milk supply?—That is so. It is tea, and tea under very unfavorable conditions. In the locality of which I can speak from experience, the tea from the morning is set aside, and when the children come home there is a fresh charge of water. I saw a child that was ill; he had been in a bed state all night, and was highly nervous, but it was not, I should say, epileptic. The mother could not give any reason to account for it, but on getting out of the house I saw the old teapot on the hob. I asked the mother was it there since morning, and she said yes. She utilized in the evening the tea-bowls left over from the morning by adding fresh water to the teapot. "Well," I said to her, "it is no wonder your child is affected as he is." "What can I do," she said, "there is no milk." The development of home industries, such as the production of home-made bread, is also interfered with by the same cause.

2159. Do you think it has an injurious influence on the physique of the rising generation?—Yes. In Oldcastle I saw recently eight boys coming into the town supplying the people with bread, so that home-made

bread has ceased to be an article of food. At the best, the bakers' bread has none of the ingredients in it that growing children would require; the ingredients that would be in the ordinary wheat-made bread are not there. In my young days, I remember the labouring men, who come particularly from Connemara, and this would be their dietary scale. They would have breakfast in the field, at eight o'clock in the morning, of skimbord, more solid than what is now usually called porridge, made from oatmeal. There would be a supply of milk, usually, if not always, buttermilk, and bread made from wholemeal or wheatsal, sometimes from rye-meal, with no mixture of flour whatever, but made on buttermilk usually. This was served after the skimbord, with a fresh helping of milk. The dinner was served in the field at one o'clock, and consisted of potatoes and butter, with buttermilk, followed by a piece of bread, as at breakfast, and a fresh helping of milk. The supper consisted of potatoes and buttermilk, served at the farmhouse; and these men, after a hard day's work in the field, cutting the corn with hooks—very laborious work it was—would take the barn-door off the hinges, and there you would see the ideal step-dancing going on. I don't say that I would wish those days to be brought back, but the men fell on the disk I have mentioned were hale and healthy and strong, and able to amuse themselves after a hard day's work.

2100. It is obvious that their physical endurance was in no way impaired by reason of their being fed on articles of food that would now be looked upon as below the average on which human nature could be supported?—On the contrary. The fact is, they had the strength and the heart, and I don't think the present generation would be able to endure the same toil and hardship on that food, or any other.

2101. The occupation at which they were engaged was a particularly exhausting one?—Yes.

2102. And notwithstanding this fact, and the simple food that they had, these people were able to bear the heat and burden of the day, and work abnormally long hours?—Yes.

2103. And after the day's work their spirits were buoyant?—Yes.

2104. And apparently they did not suffer from the effect of their hard work?—No; and what I have mentioned is not an isolated case.

2105. No such custom prevails at the present time with regard to the food of the working classes?—No. The dietary scale of the present day labourer is, as a rule, tea and baker's bread three times a day. Often the tea has to be taken with very little, if any, milk; and had butter, bought in the shops, is considered a luxury, and perhaps a little foreign bacon, which is not cooked in the usual way; they use it as a condiment; they fry it on the pan. If they used it with vegetables it would be better. The want of milk has so habituated them to the use of tea that they have got out of the way of all economy in the home.

2106. Do you think the fact that the land in your immediate neighbourhood is entirely used for the production of food has in any way affected the continuance of dairying in that district?—Indirectly it has. Tillage and the raising of crops have ceased. With the cessation of crops there is not the same necessity for the production of farm-yard manure, and there is not now the same supply of milk as there used to be.

2107. Do you think it is economically impossible to continue the same use of the land to which it was put, say, twenty-five or thirty years ago?—Yes, I believe it is.

2108. Do you think it would be possible to revert to the conditions which then prevailed?—Yes. Land that had a big reputation for raising beef and mutton, owing to the fact that it has been turned to the raising of young stock, is being impoverished. It is well known that young cattle are exhausting on the land, and land that had the reputation of being good for beef and mutton has ceased to have this reputation, and the land that was able to give such good results does not give them at present.

2109. Do you think it is possible now to secure the amount of labour in your district necessary to have the land cultivated as it was?—No; it is not the same way. There is only one prospect of improving, and that is by dividing the land into small holdings. A large holder, even in Meath, could not afford the price to be paid for labour and economically work his land; but where it is divided up, and a man's sons work for him, the very best results would be secured.

2110. Do you think that the prevailing prices for agricultural produce absolutely forbid the possibility of having the land tilled again?—Not absolutely. If it is divided up amongst the people the small farmers who have large families able to help them, would be able to till it more economically, and they would not have the difficulty that large holders undoubtedly experience in working the farms.

2111. You believe that the development and extension of the ranching system in Meath has had the effect of altering the character and use of the land?—Yes.

2112. And your remedy for that would be the dividing of the land into small parcels, and giving it to farmers who would be in a position to provide the necessary labour for tillage?—Yes.

2113. Do you think that the alteration in the use would have the effect of bringing back an increased population to the land if labour were more continuous than it is at the present time?—It would necessarily have that effect. The division of the land would necessarily open up new homesteads, and leave it possible for people to find a home in Ireland, instead of having to send their children away.

2114. Do you think that the increase of the number of homesteads in your particular district would increase the supply of milk, making it more possible than it is now for those who are homeless to secure it?—Yes, undoubtedly it would have that effect. Four large ranches have been divided up in Meath, and about eighty new homesteads have been created. These people are accumulating wealth, and have cows that they had not before, and their neighbours have a chance of getting a little share of what is going. That is an accomplished fact in my parish.

2115. You have actual experience that, as a result of the division of the ranches, more facilities are now available for the production of milk than existed previous to the change?—Yes. People are building houses, and necessarily there will be cows as part of the stock on the farm, and that means that everyone has a chance of getting some milk. I will explain to you how the poor man's case was specially provided for.

2116. In the division of these ranches has any provision been made for the grazing of the cow of such people as might not have participated in the distribution of the land?—Yes. On each ranch a parcel is reserved and secured for the labourer's cow.

2117. How is that controlled?—By trustees. Under the Act of 1903 it was only possible to vest it in trustees. It was thought that the District Council could act in that capacity, but when it was put to the test it was found that they could only turn it to use in so far as the Labourers' Acts were concerned; thus, if a tract of twenty acres was taken up the District Council could build twenty houses. The only way out of the difficulty was to get trustees, and it was hard to get people to act. When the Act of 1909 was being proposed there was an effort made to induce the State to come to the relief of that particular want, and to secure that the District Council could take up a parcel of land for the purpose of pasturage, and accordingly there is a section entitling the District Council to act for that purpose. It is section 18 of the Act of 1909, and reads as follows:—

18.—(1) It shall be lawful for the Department of Agriculture and Technical Instruction for Ireland or the Council of any county or of any rural district to purchase any parcel of an estate under section four of the Act of 1903 for any of the purposes mentioned in that section and the said Department or any such Council or any other body corporate having power to acquire land may act as trustees for those purposes and may obtain advances for the purchase.

(2) Where any land is purchased by the said Department or a County Council or rural district council under this section, the scheme for the use of the land mentioned in section 30 of the Act of 1903 shall be framed or approved of by the Department, and the requirements of that section with regard to the framing or approval of the scheme by the Local Authorities shall not apply.

(3) Where land is purchased by a county council or rural district council under this section the amounts required for payment of the instalments of the purchase annuity shall be raised in the case of the county council as a county at large, and in the case of the rural district council as a district at large.

(4) It is hereby declared that the provisions of section 4 and of section 20 of the Act of 1909 as amended by this section apply as well in the case of the sale of an estate to the Congested Districts Board as in the case of the sale of an estate to persons other than the Congested Districts Board.

2178. These are extremely interesting particulars with regard to the method which has followed the distribution of ranches in your district, whereby provision is made for the grazing of cows and the production of milk for the inhabitants of your district?—Yes. I have only to add one thing more to my general evidence as to the division of the land among small holders. I am glad to tell the Commission that the experiment is a positive success in my locality. There are eighty new holdings, and I can tell the Commission that they are accumulating wealth, and that they have the prospect before them of building houses. The Estates Commissioners have consented to advance money at the cheap rate, so that they will now give to any tenant who applies £100 to help to build a house, and there are several of them who have applied. In one estate there are several houses being built at the present time, and I think it is no extravagant statement to make that you will have milk where the home is and that emigration will be stopped.

2179. For one who has taken such a practical and keen interest in the development of the country generally, and particularly in the district in which you live, might I point out to you the desirability of having some adequate arrangement for the housing of the milk-producers under proper hygienic conditions. I have no desire to make any reflections on the administration that has already gone forward, but my belief is that sufficient attention has not hitherto been given to that very necessary matter?—I agree with you. If there could be some scheme arranged for equipping a properly set-up dairy it would be desirable.

2180. That is exactly what is in my mind, and I think I am voicing the opinion of the Commission generally when I say that I hope that whatever authority is responsible for financing these schemes will not lose sight of the absolute necessity of making provision for proper byres and accommodation for milk?—I wish to thank you for giving me an opportunity of saying something that should have been part of my own evidence, and to say that it should be a necessary adjunct to any scheme that would be drawn up. The Estates Commissioners are advancing money at present, and it would be well to direct them to make a provision in their scheme that in advancing money for building houses they should make it necessary to have a small dairy.

2181. Mr. WILSON.—I gather that you would wish that the parties in charge of a scheme such as you have described should establish not only a milk storage, but also cow-sheds that would comply with the Dairies Order?—Yes.

2182. The CHAIRMAN.—As a necessary adjunct to a healthy and comfortable homestead?—I agree.

2183. Would you be good enough to give us more in detail the practice that is followed in connection with the ranches that have been divided up?—Three very large ranches have been divided up. I am not able to give you the exact acreage.

2184. Give me a rough idea?—About twenty divisions were made of one ranch. On that ranch eighteen acres are reserved for the labouring man's cow. It is called a cow plot.

2185. Prof. MITCHELL.—A common grazing ground?—Yes.

2186. Not divided up into several parts?—No.

2187. The CHAIRMAN.—That is infinitely better than the reservation of a small plot for an individual cow?—Yes. There was land for a labourer's cottage taken off the eighteen acres, and now there are only seven acres and two rods in the cow plot. We allow two statute acres for each cow; that means we have nine families provided for in the eighteen acres.

2188. Sir JOHN LAMONT.—You think that the milk of one cow would not be too much for one family?—It is necessary.

2189. Prof. MITCHELL.—It would, of course, depend on the size of the family?—Yes. It would not go far in supporting an Irish family.

2190. Mr. O'BRIEN.—I gather from your evidence that there are no creameries in your district?—Not in my locality.

2191. So that there is no temptation to send off to a creamery milk produced by cows kept by the labourers on these eighteen acres, if not used by the family?—No; I don't think that would ever occur to you.

2192. The CHAIRMAN.—On the question as to whether or not the family could consume the whole of the milk, it would be possible for these people to sell milk in small quantities to others not so well circumstanced?—Yes.

2193. That is why I think the scheme of the utmost importance; it not only brings relief to the family which has the cow, but it brings a supply of milk within the reach of everyone in need of it in the locality?—Yes. At present such a thing is not happening, because the cow is not there.

2194. It is not possible under present conditions?—No.

2195. Has any method been devised for the selection of the persons who will get these cow plots?—Yes. We make proximity to the estate the first test.

2196. You find that is a catch of, say, 1,000 acres you will very easily secure ten or twelve people anxious to avail themselves of the cow plots?—Yes, in my locality, at least. It would rather surprise you how numerous the applicants are. Proximity to the estate as the first condition which will decide the people to be selected. The conditions under which the plots are held will be subject mainly to the payment of the expenses; that is to say, of the annuity, poor rates, and, if advisable, a slight charge to provide fertilisers, fencing, and insuring the cow. That is provided for in the Lord Lanesborough's scheme. For the present we are only charging the annuity, the poor rate, and probably some small sum for fencing—putting up paling in addition to the fence made by the Commissioners. That is the finance of the scheme—the amount of charge.

2197. With regard to the selection of the plot, is it usually taken at the centre or on the fringe of the estate?—It is usually taken abutting on a public road. It is always on the fringe.

2198. In whom is the land vested under the scheme?—Three trustees. I am one, the Chairman of the Board of Guardians is the second, and the Chairman of the District Council the third.

2199. All representatives of public interests in the locality?—Yes.

2200. Mr. WILSON.—In the scheme you have described there is a map of the locality?—Yes. I have the map here.

2201. Lady EVELING.—What charge is made for each cow?—The annuity is £5 11s. 6d. half-yearly for the eighteen acres. The rates are 18s. 7½d. half-yearly. We have not exactly nine men at present selected, but we have made provision for nine next year, when the scheme will be in full working order.

2202. Prof. MITCHELL.—Your figures would work out practically at £1 9s. for each labourer.

The CHAIRMAN.—That is extremely moderate?—The cost heretofore where they have been grazing has been £4 10s. for the half-year, from May to November; it is a privilege to get those terms, and they won't be given unless there is some relationship between the landowner and the individual who asks for the grazing.

2203. What class of man has been selected, or is it necessary, in order to secure the right to pasturage on the cow plot, that the man should already possess a cow?—No.

2204. But if a man says I will have a cow ready, you reserve a place for him?—Yes. They have got so much away from this state of things that they have lost heart. They began to think that it was no use; because in the old times they thought it foolish to keep a cow because of the risk of not having accommodation for it, but now they are moving rapidly. There is only one thing that I regret about the dividing up of this land—that twice the area has not been reserved for the labourer.

2205. Of course, your scheme is an entirely new idea?—Yes. With the knowledge I now possess, I would advocate an appeal to people interested to secure not only the grazing for the summer months for the labourer, but also a patch of ground to enable him to provide feeding for his cow. At present the poor man who wants hay has to pay £5 for it on foot.

Therefore, I say that in dividing an area of 1,000 acres, I would reserve 40 or 50 acres for the poor man's cow; and he could have it on those conditions—he could have the hay for the winter at the figure which has been calculated to cover the cost. It would cost the labourer 210 to keep his cow under present conditions, but under our system it will not cost him half that sum.

2206. Prof. MERRIM.—What you would like is to have the land divided up into two lots—one which is being grazed and the second cropped?—Yes.

2207. And that crop would come in for winter use?—Yes.

2208. The CHAIRMAN.—Might I inquire what class of man has been selected—is it a man who has a small holding of his own or a labourer in a Union cottage?—For the cow plots we have in every case selected a man living in a labourer's cottage who has already a status as owner of ground. He has that for his vegetables.

2209. Mr. O'BRIEN.—Does he, as a matter of fact, give a certain amount of root and grain crops to supplement the plot?—He has not a cow yet. I am sorry to say that many of the labourers do not cultivate their plots very well.

2210. The CHAIRMAN.—Do you think they will display more energy in order to produce the requisite winter feeding for the cows?—I am quite satisfied that will happen. They will get courage, and be infused with a new spirit.

2211. These plots are desirable, not only for the improvement of the economic conditions of the country but also for the development and improvement of the moral tone?—That will follow, necessarily.

2212. Mr. WILSON.—Might I ask you to indicate to us how the new plots that are being divided are situated with regard to the cow plot?

The witness pointed out on the map the location of the cow plots in relation to the portions of the estate which had been divided up.

2213. It is not necessary that the labourer should reside on the estate in order to qualify for the grazing on the cow plots?—No.

2214. Dr. MOONMAN.—The labourer, in no instance, gets any part of the land?—No. He gets no right or title except for the year he is grazing his cow on the plot. Next year the trustees will make their selection, and if he has been paying up and using his plot properly, proximity will decide his claim the following year again.

2215. Prof. MERRIM.—It is one check—that he has to renew his tenancy every year?—Yes; and he has no title, and can give no trouble.

2216. Sir JOHN LESTERMAN.—Have you any shelter on the cow plot?—It is an open plot, and in the winter time they must bring their cows home.

2217. And they must have byres?—Yes.

2218. The CHAIRMAN.—As a matter of fact, there is no provision made for the construction of such byres; but I may point out that for a very trifling expenditure, a wooden house could be put on the plot?—Yes.

2219. You have commenced with the foundation—to provide them with the land?—Yes.

2220. Has any scheme been thought of with regard to the advancing of money by way of loan to the labourers for the purchase of cows?—No; but I am glad to say it is quite surprising how people are moving, and making the effort to provide the cow.

2221. I have no doubt that shopkeepers and others who have thrifty customers, making the possibilities of this development, may help and assist—I would not advocate such loans at all. Give the people the plots and they will get the cow.

2222. Prof. MERRIM.—You do not want them to start in debt?—No.

2223. The CHAIRMAN.—As this is a Milk Commission, I am perhaps rather in a hurry to see the cow yielding the milk straight off?—There is a great deal to be said in favour of that.

2224. Mr. O'BRIEN.—Have you no scheme of co-operative credit societies?—We have not got the banks. We tried them, but found it very hard to work them. We take the cow as a unit, and the calf and the yearling are charged in proportion.

2225. So that the labourer can develop his animal on the plot at a proportionate tariff?—Yes.

2226. Prof. MERRIM.—Supposing he could not afford to get a cow, he could put on an equivalent number

of sheep?—We confine this plot to the cow, which we regard as a unit, the calf and the yearling having proportional tariffs. We have no sheep.

2227. A scheme similar to this has been working for some years in England, where they put up various plots of land by public auction. This scheme of Father Barry's is a most interesting one.

The CHAIRMAN.—I must say I am extremely interested in the scheme.

Mr. WILSON.—I am anxious to know if this is a conscious revival of the old Celtic land tenure?—Yes, except that they had the land free. In Duleek there is no charge whatever, except for rates.

2228. Is that a commonage?—Yes.

2229. And does that custom prevail still?—Yes, in Duleek.

2230. Miss McNEILL.—Has it endured all along?—It has in Duleek.

2231. Sir JOHN LESTERMAN.—There is a commonage not far from Dublin?—Yes.

2232. Mr. O'BRIEN.—In Duleek, they used to have certain rights over the mountains, and the richer man used to take a great deal more than his share, so that there was no room for anyone else?—In Duleek, custom has decided the law, and there is no trouble.

In Duleek, it led to a great deal of trouble when they were dividing the land.

2233. Lady EVANS.—Supposing you did not have nine labourers to take up the cow plots, on whom does the loss fall?—On the trustees; but as things are there is no danger whatever. In the event of a deficit, the trustees would be responsible.

2234. The CHAIRMAN.—In the event of these selected not proving suitable, are the trustees empowered to seek elsewhere for more deserving people?—Yes.

2235. What class of people have been selected for the plots that were broken up—are they residents of the districts or people brought in from other districts?—Principally residents. In a very large proportion of the cases they were small people who had uneconomic holdings, and there was an amount added to their holdings which gave occupation to their young people. In a great many cases they were people who were selected from the sons of farmers with four or five young boys, well able to work; and the Estates Commissioners took one of these young men and gave him a division of the land. I am glad to tell the Commission that they are really thriving and prosperous.

2236. The Commission is delighted to hear it.—In the public Press I sent an invitation, and asked people not to take any word as to the condition of these new tenants, but to come and see for themselves, and that I would give them an Irish welcome.

2237. Dr. MOONMAN.—What is the average size of these holdings?—They vary. In some estates they make larger divisions than others, but very few of them are under twenty statute acres.

2238. Would twenty statute acres be the minimum?—There are down to fifteen acres in some cases.

2239. Would from fifteen to twenty acres be the minimum?—Yes; and they go up to forty; and one man got up to seventy acres. He was the head of the estate. I would advise in that respect that less than twenty Irish acres should not be given. It gives a man and his family sufficient field to work in, and if you give him less he has to take in one-acre, and that runs away with his thrift and savings.

2240. Sir JOHN LESTERMAN.—It has been alleged that some tenants only made a little attempt at tillage, and that the land speedily relapsed into grazing?—In some cases they have to set the land, and I would not say that they were to blame. Some have to set the land until they get the cattle.

2241. Prof. MERRIM.—You do not think it is a serious danger?—No.

2242. Unless they make a trade of it?—Yes. There are a few of the eighty new holders who have set the land; but there is a reason for it, and it is not a bad sign. When they recover, they will give a good account of themselves. It is not easy to tell. You must have the nature; but some are building houses now, and having succeeded so well up to this, I am confident that they will continue to succeed.

2243. Mr. O'BRIEN.—They are labourers with Union cottages that you have selected for the cow plots?—Principally.

2244. That is to say, with one statute acre to each cottage?—Yes.

2245. Do they till their acre of land?—Some do, and some of them make a very poor use of it.

2246. Do you think that when men like that would get the additional power of grazing a cow it is likely that they would alter their scheme of life? Take a man who scarcely ever used his land, except mowing it. Do you think that getting the right to graze a cow outside makes him alter his mode of living?—I think it will have that effect; but I cannot speak from facts. We can exclude the man who is unsatisfactory.

2247. If you found that a labourer who was putting in for these commonage rights was unsatisfactory, the trustees have the power to refuse him?—Yes.

2248. In certain cases, where you get a head-working man, he does a great deal with his acre?—Yes. I think that the addition of the cow plot will encourage him to make better use of his acre.

2249. The CHAIRMAN.—I think it will open up to him a new vista of possibilities—is not that so?—Yes.

2250. Mr. O'BRIEN.—There is some talk now about increasing the statute acre attached to the labourer's cottage to three acres?—That is a different tenure.

2251. The CHAIRMAN.—The labourer on the cow plot can hold only during the goodwill of the trustees, and so long as he makes good use of the land?—Yes.

2252. That is an antidote to the creation of un-economic holdings?—It is a check.

2253. And it is a premium on industry?—Yes.

2254. Mr. O'BRIEN.—Some people would say you are giving him grazing, and that, seeing he has one statute acre already, it would be simply giving every labourer two extra acres?—He would have to hold it as a farmer then, and that would be a bad scheme.

The CHAIRMAN.—There is no analogy between the two. Father Barry's scheme makes the tenure of the land impossible.

2255. Lady EVERARD.—I know you have great experience of school gardens. Would you tell us if you see any effect of the training the children receive at school in gardening?—Yes.

2256. Are their parents induced to grow vegetables?—They are moving in that direction. They bring home plants from school, and in that way their education is reacting on others. It is plain to be seen that it is having a good effect. The difficulty is this scheme about cow plots is regarding getting trustees.

2257. The CHAIRMAN.—Is it difficult to get three people in a district who will be so anxious about its development as to undertake the duties of trustees?—The Estates Commissioners tell me that there is that difficulty now about getting trustees.

2258. Do you know, as a matter of fact, whether a scheme like yours has been brought to near fruition in any other district as in that over which you preside?—Yes, in an adjoining locality, also in Meath. It was practically the one dividing up of the land. The inspector who was engaged carried the same idea there. I appealed to him to make sure that he would not give the land away without reserving a plot for the labourers. I am also told that the scheme in this adjoining district was a success. There was a little trouble as the beginning.

2259. I hope the success of the scheme in your district will appeal to public-spirited men in other districts to take up a measure which is so useful, not only from the point of view of economic improvement, but also from the point of view of raising the moral tone and improving the spirit of independence?—I think it will have that effect.

2260. Passing to a further development of the scheme, do you think that the carrying out of the idea will not only tend to the development of habits of thrift and industry, but restrain the use of alcoholic drink?—I think it will necessarily have that effect. At present men, like maids, who have to go to their work at a distance from home, go to the nearest public-house, and get a pint of porter and some bread and butter. They will tell you that they have nothing else to get; that they could not get a pint of milk.

2261. So that the unfortunate habit of drinking which has developed in some districts is due, in some degree, to the fact that these stimulants are practically the only liquid food which is available?—That is so, to a very great extent.

2262. And, unfortunately, of course, the use of it, in a minor degree in the first instance, may lead to the abuse of it at a later stage?—Yes; they will get into the habit of taking the drink, not merely using it as an article of food.

2263. Have you thought of any other scheme whereby it would be possible to secure that milk could be provided for cottagers outside districts in which there is no breaking up of meadows, and in which the land is not available in the way you have so clearly indicated?—There is such a thing as subsidising a local dairy; but I have no scheme worked out.

2264. Suppose, for example, the local authority—the District Council or the Board of Guardians—guaranteed to take from a certain cowkeeper or landowner in the district a fixed quantity of milk for 365 days in the year, at a fixed price, provided he distributed the milk over a certain area—do you think that would increase the possibilities of providing milk?—I do not know how it would work out.

2265. What I had in my mind was that a central butter could be made from Imperial sources, another contribution to come from the rates, and 50 per cent. of the entire cost to be paid by the purchaser?—It is rather an irrelevant thing to suggest anything that would add to the rates in a country district. I do not know how the scheme would work.

2266. The local authorities, in order to safeguard the public health in their district, are obliged to make certain expenditure with regard to hygienic conditions and buildings—milk stores and cow-houses—and if the belief is well founded that milk is an essential diet for the support of human nature, and that it is so economic a diet as can possibly be produced in an agricultural country, do you not think that there should be some warranty for expecting that the local authority should become contributory to the well-being of the population at large?—I do not see why it should not be. The principle is already established in ways that would not have as beneficial an effect. I would agree that the principle is sound. How it will work out I could not tell. I am inclined to think it would work well if once inaugurated.

2267. Mr. O'BRIEN.—Do you not think that any such scheme would depend on the personal character of the local authority, whoever it was; that it would be just the same as in the cow-plot scheme, where there is a difficulty about trustees?

The CHAIRMAN.—I am putting this before you purely as a hypothetical scheme, and I am anxious to have the opinion of one who has worked out practical schemes with such good results?—I think the principle underlying it is sound, and that is a great deal secured. I have no doubt that what is recommended with prejudice in the beginning will, when it comes to be worked out, be seen to have as much reason for it as the other things we are doing.

2268. Reforms are generally confronted in other countries, as well as this, with a certain amount of prejudice?—Yes, that is so.

2269. And these prejudices frequently disappear after a time?—Yes.

2270. Returning to our cow plots, will you tell us if you have made provision for a proper water supply?

—There is only one; but I am appealing to the Estates Commissioners in this matter, and I believe further provision will be made. I may mention that we have a bank account open for our plot. The reason we did this was that the people would have no immediate results from the using of the plots. By opening a bank account, the bank will advance money on the strength of the trustees; and when November comes round the labourer will find less difficulty in paying the little overdraft. It will only be a few pence on them. I think it only fair to mention that the £4 10s. for the grazing of the cow, in the case of a poor man dealing with a farmer at present, includes also the keeping of the calf with the cow.

2271. Up to a certain age?—Yes.

2272. They will be obliged to make provision for the calf after it reaches a certain age?—That is so.

2273. Lady EVERARD.—£1 7s. each is what the nine labourers would have to pay for the use of the cow plot?—Yes.

2274. How much more will you add to that?—It would depend on the scheme you are working.

2275. At present, what do you propose to add in the case of your own scheme?—Nothing at present; the land is not impoverished yet.

2276. The labourer's calf will pay more than what you charge him for the use of the plot?—Yes. Our scheme is not yet in shape.

2277. You heard a great deal about goats this morning?—Yes.

2278. What is your opinion about goats?—It is the poor man's cow. I think it ought to be feasible, and it would be no harm to try it.

2279. Is it your opinion that it would be feasible to have them standing, as you have premium bulls?—It would depend on the locality. We are so packed in Meath on big grasses that a man would be looked on with contempt if he came to keep a goat; but, as in the case of other good schemes, that prejudice will die away. I do not see why it should not be encouraged.

2280. Would it be a good plan for the County Committee to bring forward?—Yes.

2281. The CHAIRMAN.—I saw in the press of your evidence that you made some allusion to the subsidizing of local dairies. Would you kindly tell us what you have in your mind?—In Carlow, they are working a dairy. It is a philanthropic matter.

2282. On what lines?—Local people, like the Women's National Health Association, are working it. They give milk to poor people at 1d. per quart.

2283. That is a development of the work of the Women's National Health Association?—I do not think so. In Carlow, it is a few people in the immediate locality that are working it as a philanthropic scheme. Perhaps it is graded on to the work of the Women's National Health Association.

2284. Unfortunately, philanthropy is often an evanescent quality, and not always present in the same degree?—Yes.

2285. To work any general scheme that would last, one would have to deal with it outside the philanthropic aspect?—So much the better. Philanthropy is good in special cases, but as a common everyday working system it is fatalistic.

2286. You look at it from another point of view, I assume from the point of view of the moral tone of the people. You think that some other scheme ought to be instituted that would give the people a personal interest in what they are doing, and make them feel that they are doing it for themselves?—Yes; and that they have no one to thank but themselves. Of course, philanthropy can co-operate in and promote these things by organising and helping them. I think buttermilk is a thing that should be taken great notice of, because I consider it is, in some respects, more important than the sweet milk for children and young people, and for use as a condiment. It would be better to aim at supplying them with buttermilk than with sweet milk.

2287. It is a thing almost impossible to get just now?—Yes.

2288. Sir JOHN LESTRAUNGE.—I was struck with the picture you gave us, as the result of your observation, of the decadence of the present generation compared with the past. It struck me that as certainly what one would expect from the consideration of the nutritive value of the different diets used—milk and buttermilk and porridge and home-made bread in the old days, as against tea and white bread at present. Formerly the farmer used to churn on his own farm?—Yes.

2289. And the result was a certain amount of butter and buttermilk?—Yes.

2290. The buttermilk went to the poor labourers, and was consumed also by the farmer's own family?—Yes.

2291. The present system of making butter in large creameries is not by making buttermilk but by separating milk, and the by-product is not so wholesome for human consumption as buttermilk?—No.

2292. You think that the buttermilk is necessary?—Yes.

2293. You think that in order to have the buttermilk it would be necessary, in the case of dairies being subsidised, that buttermilk should be produced?—I think that it would be a very wise provision. The supply of buttermilk is undoubtedly a need, and anything that would supply that need would be very wise.

2294. It would be necessary to specify that the churning should be of a form that would leave buttermilk, not separated milk?—Yes.

2295. Mr. O'BRIEN.—The present churning in the creamery does that, but they have to add ice or water to bring down the temperature, so that the buttermilk is watered.

Sir JOHN LESTRAUNGE.—Does not the heat destroy the buttermilk?

Mr. O'BRIEN.—I do not think so. They have a better system now, and the buttermilk is now sold at the creameries or given back to the farmers with the separated milk.

Dr. MOONSHAN.—There is very little butter in it.

Sir JOHN LESTRAUNGE.—If the creamery could supply buttermilk as good, or nearly as good, as one would go in for an economic product, but it is an economy to make the children grow strong.

Mr. O'BRIEN.—It is only in small dairy farms that they churn the whole milk.

The CHAIRMAN.—It was the universal custom, and the buttermilk was available in large quantities and used in various ways.

2296. Sir JOHN LESTRAUNGE.—It encouraged the use of porridge and the making of home-made bread that would not otherwise be provided?—Yes.

2297. White bread is an economic matter?—Yes.

2298. Is it not largely ignorance that makes the people use baker's bread instead of home-made?—They are not sufficiently alive to the importance of the home-made bread.

2299. The CHAIRMAN.—Do the National schools teach the value of food?—Yes; they are doing very good work in that way now, and teaching them to cook and instilling them in the value of foods.

2300. And the domestic instructors are also going round now under the aegis of the Agricultural Department?—Yes.

2301. All these educational agencies combined must undoubtedly be producing an effect on the production of home-manufactured food?—Yes; and principally the agency at work in the National schools, because the other instruction is too precarious. It is only once in a time that the domestic instructors come round.

2302. One gratifying piece of evidence is that the milling of wheat in Ireland is more universally followed than it was ten or fifteen years ago?—I am glad to say that that is so in my own locality. Many small farmers are growing a small patch of wheat and get their own wheat ground. You are free to face with the milk difficulty here again, and it knodes the rest of the work out of position.

2303. Mr. WILSON.—I take it that the essential feature of your district is that it is a beef ranch?—We are on the dividing line between the country that is beef-raising and the small fencibles. We are on the borders of Co. Cavan.

2304. The reason for the shortage of milk, before the improvement began, was that the land was largely given up to the production of beef?—Yes.

2305. It was not due to the creamery system?—No. The creamery system has not affected us at all.

2306. You referred, I think, to the new holders who are taking these plots that were broken up out of the old ranches. In each of the cases you have suggested to us, are any of the new holders emigrants from other districts?—A few are. The Estates Commissioners were pressing us very strongly to import men to this locality, which is already crowded with small holders, and I pointed out that the Commissioners would be doing no good to the people they are bringing in, and a lot of harm to the locality, and that if they were importing people they ought to do it into a district not so congested. Out of the eighty people who have got holdings on the ranch, we have only six or seven emigrants.

2307. I think you laid stress in your picture on the country amusements in the old days?—Yes.

2308. Would you not lay a certain amount of stress on the amusement of an evening in the country?—I believe it is quite essential.

2309. With regard to the trustees, you say there is a practical difficulty in getting them?—Yes; so the Commissioners told me.

2310. What measure of continuity have you in the body of trustees you have got?—The Lord Lieutenant has made provision for that. When one drops out another is appointed, with the sanction of the Estates Commissioners.

2311. That is to say, you have a continuous body not dependent on the life of any particular person?—That is so.

2312. The CHAIRMAN.—Has no provision been made as to where this land shall lapse at the expiration of the period of the currency?—There is no provision about that.

2313. Mr. WILSON.—The body of trustees you have at present are, I take it, like yourself, interested in the social improvement of the country, and are not organised except in this particular project?—That is so.

2314. I see that you have suggested in your brief of evidence that the Women's National Health Association should act as trustees?—I think someone should interest themselves, because possibly lands may be divided before people are aware of it, if there is not someone on the lookout. I think that there should be someone who would interest themselves, and see that the cow plot is secured in any division of the land, and I thought that the Women's National Health Association might possibly come in usefully in that respect.

2315. So far as you know, there is nothing to prevent any association of individuals, either the Women's National Health Association or the United Irishwomen, organising a trusteeship?—I would refer you to section 18 of the Land Act of 1909, which I have already read.

2316. Have you a secretary?—Yes; we have a minute book and we hold meetings, and now we shall have to keep accounts.

2317. Is there someone to see that the trustees are carrying out their duties?—Anyone who sees that we are abusing our power can memorialise the Lord Lieutenant, but until such memorial is sent up we have power, and until we are challenged we have discretion; but it is open to anyone to challenge our administration, and the Lord Lieutenant is free to come along and ask us to give an account of our stewardship.

2318. In your ordinary routine work you have a minute book and a secretary?—Yes; this is the minute book here, and our account book is also here.

2319. Mr. O'BRIEN.—The cottagers who are getting the rights to commonage have already Union cottages, for the most part, under the Labourers Act?—Yes.

2320. And are therefore under the supervision of the District Council and under the inspection of the Local Government Board?—Yes. We are not bound to these people, you know.

2321. Practically speaking, this scheme if carried out in many parts of the country would be largely concerned with those Union cottages?—I expect it would.

2322. And these are inspected under the authority of the Local Government Board?—Yes.

2323. So that it would be quite possible for the Local Government Board to say "We cannot sanction such a cowshed as you are putting up for this recently acquired cow"?—Yes.

2324. And is there no power among the trustees, who are also local authorities to a certain extent, to say, "You must put up a cowshed, it must be suitable." Is that one of your duties as trustees?—No. The District Council will have to be asked to give their sanction to the man who proposes to put up this erection in connection with his Union cottage. We cannot interfere with them; but if the occupants of the cottage ask the permission of the District Council I am perfectly sure it is only a matter of form. At the same time we cannot interfere.

2325. It was not so much whether the labourer had the power to do so, as to whether there was someone who would see that he put up a cowshed that would be suitable. In a general way what the labourer would do would be to get a few sticks and put a frame to the house, but that might be a very bad thing to do?—The trustees cannot interfere in that.

2326. Do you not think it would be rather a good thing if you could get in touch with the District Council, and that someone of the Council were a trustee, to see that these sheds were put up in a suit-

able way. What I wish to get at is whether there would be proper supervision to see that there would be no risk of disseminating disease?—There is no provision made. We are only acting as trustees to a parcel of land, and there is no question of building houses at all.

2327. Mr. WILSON.—Nor is it your business?—No.

2328. Your responsibility is confined to the cow plots?—Yes.

2329. Mr. O'BRIEN.—They have, in addition, chosen men who have labourers cottages?—It would come in in that way. In using our discretion we could refuse a man accommodation on the plot if we were satisfied that he did not make a proper provision to keep the house as he should keep it.

2330. Mr. WILSON.—You could use your power as a lever to make him clean up?—Yes.

2331. Dr. MCCORMACK.—I take it that you were in a very acute state of distress for milk before you established this valuable scheme of yours?—Not more than elsewhere.

2332. It is very acute?—Yes.

2333. What did you do to deal with the scarcity of milk?—They had to do without it, and they have gone along the road. This scheme of ours has not taken full effect yet.

2334. At the present moment you have not milk?—Yes.

2335. Is there sufficient to meet the demand?—Not quite.

2336. You would approve of including in your scheme the substitution of the barn-dance dance for the village hall?—Well, everything has its own place; if the barn-dance dance meets the needs and satisfies the requirements you have it.

2337. What about cross-road dances?—The age is gone for the cross-road dances.

2338. In the building of labourers cottages you would approve of keeping the cottages more together?—In Ireland the labourers' employment is so scattered, and why should you bring them together.

2339. The reason I suggest that is, that if they are kept together it would be important from the point of view of the water supply?—The District Council had a reason for separating the cottages.

2340. Have all your labourers cottages water?—That is made a condition in selecting the site. The Sites Committee take care to see that the water supply is within reasonable distance.

2341. Mr. O'BRIEN.—Under your scheme you are practically encouraging the grouping of cottages and labourers around this plot?—Not necessarily.

2342. Where do the children from these cottages go to school? Do you select the site in relation to the school?—No; because the ranch will be divided up independently of the needs of the school; and with regard to encouraging the grouping of cottages around the plot, the District Council will decide where they put the labourers cottages.

2343. In your scheme of milk depots, was it your idea to supply the school children with milk?—My idea was a very crude one, and I had not any scheme worked out. In Carlow I know there is something done to give milk at 1d. per quart.

2344. Mr. WILSON.—Is your idea that the school should be the distributing agent?—No; the centre. If the milk depot was established you could ensure the children getting milk by having the milk at the school.

THE CHAIRMAN.—Thank you very much, Father Barry; we are extremely obliged to you for your valuable evidence.

Mr. W. E. TAYLOR examined.

2345. THE CHAIRMAN.—You are connected with the British Goat Association?—I am Chairman of the Committee of the British Goat Society.

2346. We had interesting evidence from Lady Dunleath as to the improvement of goats by the crossing of breeds. The Irish goat has been bred rather persistently, and without any design of improving its form or developing its milking power; and, as a result, it is rather diminishing from a utility point of view. We have been informed that by the infusion of new blood and the crossing of the breeds it is possible

to increase the milking power considerably. Would you give us your views as to the crossing of Irish bred goats, and tell us what new infusion of blood you would suggest?—I think it is extremely desirable that there should be a cross with male goats of good milking qualities. I don't think crossing with an ordinary prize goat will do much good; but if you had goats coming from milking strains it would be a great advantage in Ireland; it would improve the quality of the milk and the time the goats were in milk.

2347. One of the difficulties with regard to the milk supply from our Irish goat is that it is only available for a very limited period of the year. These cross-breeds produce milk which is available for a much longer period than that from the Irish goat. Have you any experience in the crossing of these breeds with other home breeds not necessarily Irish?—I am interested in the whole subject.

2348. But you made an experiment from your own point of view?—No.

2349. You are familiar with the Continental breeds?—Yes.

2350. Which of these do you think would be most useful for crossing purposes with the object I have endeavoured to explain?—The Toggenburg or Swiss for the milk supply. The difficulty is that you cannot get them over.

2351. Owing to restrictions imposed by the Department of Agriculture in consequence of the prevalence of disease?—Yes. The same difficulty is present in England. We have some pure goats in England, and by crossing them with others the milk supply has been improved very largely.

2352. Are there any goats of the Toggenburg breed raised in England?—Yes.

2353. And the difficulty of securing their introduction to Dublin would be less, of course, than getting them from their native home?—Yes.

2354. Are they available in England at reasonable prices?—Not at low prices; because the great difficulty is that we cannot import from abroad; but I should think that what we call the Anglo-Swiss and the Nubian goat crossed would answer for what you want.

2355. Is it the custom to introduce into England female as well as male goats of the Toggenburg breed?—Yes.

2356. Goats come to maturity so rapidly that one would hope that it would be possible, even within a very reasonable period, to secure a sufficient number of the pure male breed for crossing purposes?—We discourage breeding from young goats.

2357. In this country, I believe, they are breeding practically early—six months?—Yes.

2358. You would like a longer period?—Yes.

2359. From twelve to fifteen months' old?—If you could breed at ten months it would be an improvement on your present system.

2360. Prof. MERRITT.—Are these Toggenburg goats large milkers on their own account?—Yes.

2361. And they are able to transmit that power to their crossed offspring?—Yes.

2362. You think that over here in Ireland if we introduced new blood from a milking strain that it would be sufficient?—Yes.

The Commission then adjourned to the following morning.

EIGHTH DAY.—TUESDAY, 12TH DECEMBER, 1911.

The Commissioners met at No. 5, Upper Castle Yard, Dublin.

Present:—P. J. O'NEILL, Esq. (Chairman); LADY EVERARD, Miss MARGARET McNEILL; Sir JOHN LENTAGNE, F.R.C.S.I.; GEORGE A. MOORHEAD, Esq., F.R.C.S.I.; ALICE WILSON, Esq.; DERMOT O'BRIEN, Esq.; R. J. CAMPBELL, Esq., B.Sc., Professor A. E. MERTON, B.Sc., M.R.C.V.S.

S. W. STRANGE, Esq., Secretary.

Mr. A. FRANK WILSON examined.

2363. The CHAIRMAN.—You are an Inspector in the Department of Agriculture, I believe?—Yes.

2364. And the nature of your duties brings you over the country generally, and more particularly in connection with the creameries and their management?—Precisely.

2365. And you are, I take it, familiar with the circumstances under which assessments carry on their work?—Yes.

2366. Would you be good enough to tell the Commission, as the first place, what precautions are taken by creamery managers to ensure the delivery of the milk in a healthy condition?—They ought to examine the milk, and the vessels in which it is brought, taste the milk, notice any odour that comes from the can immediately the lid is taken off, and stir the milk up

2363. And the milking strains, which are apparently the fashionable strains, are the Toggenburgs and the Anglo-Swiss?—Yes; but not the Anglo-Nubian. It is more for appearance.

2364. A little Anglo-Nubian blood would mean that you would have a kind of dualised goat?—Yes. The improvement you want in Ireland should come from a strain of goats renowned for their milking qualities.

2365. What is the ordinary quantity of milk that a goat will give, a few milking goats?—Two to three quarts; but I am told over here you get more than that.

2366. Do you milk them twice a day?—Yes.

2367. How long are they in lactation?—Some are eight or nine months.

2368. I suppose the more green stuff they get in their food the longer they keep in milk?—Yes.

2369. Generally, it is understood that dry feeding shortens their lactation?—That would be so, I take it.

2370. Sir JOHN LENTAGNE.—Have you experience of stall-feeding goats?—Not personally, but I know of it.

2371. Are goats free from disease?—Yes.

2372. How long will she continue giving milk?—Five or six years.

2373. Lady EVERARD.—Would you recommend the people to keep the male goats of the crossed Toggenburg with the Irish goats—the first cross?—I think so.

2374. How old can you use a goat as a sire?—They are bred from very young, sometimes from six months, but personally I would rather see them older.

2375. Sir JOHN LENTAGNE.—If it were not for the quarantine restrictions there would be no difficulty in getting the Toggenburg?—No.

2376. Mr. O'BRIEN.—Supposing the restrictions were taken off, one would have to pay a good price for a well-bred Toggenburg?—I think they would cost about £7 or £8. I think they could be brought here for that sum.

2377. Dr. MOORHEAD.—Is the Toggenburg a lactem goat?—Generally.

2378. Miss McNEILL.—Have you any experience of the milking qualities of the Spanish goat?—No.

2379. Are goats liable to contract disease?—Yes; but they are very healthy, if carefully kept. The damp weather is against them.

2380. What happens if they are much exposed to wet or damp?—The damp weather is against them.

2381. Is there much variation in the quality of the milk?—There is.

2382. Mr. O'BRIEN.—The percentage of fat in the Toggenburg milk is about 7?—I cannot answer that question.

to see if there is any suspended matter or visible dirt in it; they should also examine the can lids, the neck of the can, and the interior, if possible, to see if there are any traces of dirt in the corners of the can or in the milk indicating that the can has not been properly cleaned, or that the milk has not been strained. This is what good managers do. Of course, there may be others who do not follow this course quite so strictly.

2383. If the creamery manager should not be satisfied with the condition in which the milk is being delivered, what steps does he take?—If the milk is not too bad, or just indicates the creeping in of sourness, he will probably warn the supplier. If it is too bad to run through the heater or the separator of the creamery he may return the milk; but this is governed to a great

extent by other circumstances. For instance, if a district has a number of creameries in it, whether they are co-operative or proprietary, they are all competing for the milk supply in that district, and competition may lead to milk being accepted that under other circumstances would be rejected. Again, in the case of co-operative creameries, the manager is very often the employee of the man tendering the milk, and there might be a difficulty about refusing such milk. Refusal might get the creamery manager into trouble, and lead to his losing his position.

2288. Are there no rules laid down by you for the guidance of creamery managers regarding this particular question?—There is a leaflet published by the Department on "Dirty Milk," which most creamery managers have read, and they probably look for the indications of dirt which are set forth in that leaflet. We have another publication, an Appendix to the Scheme for the Improvement in the Management of Creameries, and in that managers are advised that they should examine the milk carefully; and it states that "dirty milk, or milk delivered in dirty vessels, should be rejected." I may say that the instructions in dairying who visit the creameries, generally examine the milk supply on the occasion of their visit, and they have been directed to pay particular attention to this point, in order to strengthen the hands of the owners or creamery managers as far as possible, so that they will have a backing in rejecting dirty milk where it is tendered. We also have a series of stamps, which the instructor in dairying uses on the supplier's card or pass books. For instance, I have here a series of stamps. Some of them, I think, have been slightly altered since, but the alterations are unimportant. You will see that where a man delivers clean milk, in a clean condition and in a clean can, we stamp the supplier's card to that effect. If the supplier delivers milk in a dirty can, or if the milk is uncleaned, we state these facts; and if such things as dirty cloths, hay, or newspapers have been used in tightening the lids, we draw attention to them by means of the stamps and verbal remonstrances. Thus, for example, where the milk is obviously uncleaned, the Department's instructor is dairying marks the supplier's pass-book or milk-card with the stamp, "Department of Agriculture—All milk should be properly strained." The stamp used when dirty cloths are used to make the lid tight is, "Department of Agriculture—Cloths should not be used." In cases of badly cleaned milk cans and lids, the stamp is, "Department of Agriculture—Milk cans and lids require thorough cleaning, scalding, and airing every day." Where cans, lids, and milk contained in the can are obviously sweet and clean, the stamp used is, "Department of Agriculture—Milk and cans delivered in good condition."

2289. Supposing, for a moment, you had discovered in the course of your investigations that, notwithstanding the admonitions administered to the creamery managers with regard to the condition in which the milk had been received at the creameries, no improvement had taken place, have you power to take further steps regarding the management of this creamery in order to ensure that its work is carried on under strictly hygienic conditions?—That is, that clean milk only be received.—We have no legal power whatever.

2290. So that, in reality, your inspection only enables you to remonstrate with the people in charge of the creamery, and if they set your remonstrances at defiance, you have no power to insist on the regulations had been being carried out?—We have no legal powers, but what we should do would be to write and warn the Company or Society that if they did not take steps to improve the supply by rejecting dirty milk, we would refuse to give them any assistance by way of instruction. If they did not attend to that warning, and no improvement was observed, we could only withdraw.

2291. How often have you been obliged to have recourse to this remedy?—I cannot give you the exact figures at the present moment, but I could get them for you. The instructors are visiting 396 creameries at the present moment, and I would not like to give any figures without going over the reports.

2292. Mr. CAMPBELL.—It is common, is it not?—We frequently were there about the condition of the milk.

2293. The CHAIRMAN.—Supposing you found that your instructions were not carried out, and that there was persistent neglect and carelessness?—We have no legal power to do anything and can only withdraw.

2294. Have you ever reported these creameries to the District Council in the districts in which the District

and Councils Order is in operation?—No; we have not done so in any case that I can call to mind.

2295. Would it not be competent for these authorities to take action with regard to such creameries?—I think the local authorities have power, through their inspectors, to examine the milk supply at the creameries from the point of view of the public health, and we have no such power, but I do not know how far they enforce that inspection.

2296. Mr. CAMPBELL.—Would the Department's instructions be allowed into the creameries if they came as spies and informers?—No.

2297. Mr. O'BRIEN.—Do you ever report to the Medical Officer of Health if you find that your recommendations have not been carried out; would it be within your function to report to the Medical Officer of Health?—No; we are concerned with the commercial point of view, not with public health. There are many difficulties with regard to this dirty milk, and one was published in the *Irish Homestead*, of 12th May, 1900, from which the following is an extract:—"A doctor (a sanitary officer) who was a supplier of milk to a co-operative creamery, was repeatedly given notice that his milk-churn should be cleaned and, on one occasion the Department's instructor pointed out the injury of accepting milk in the dirty can."

The manager wrote, "Kindly see to the cleaning of your milk-churn, and oblige," etc. The reply was amusing—"Let me have no more of your important notices about the cleaning of my milk tank, because there is nothing cleaner than it going to the creamery. To the best of my opinion, you are badly able to distinguish between dirt and cleanliness. To prove this to you, as Sanitary Officer of the district, I intend visiting your creamery for inspection; I also intend to report your conduct to the Committee, whom I expect very little from, but if I do not get satisfaction from them; you may be prepared for me over this conduct." The Committee looked up their man, and passed a resolution deploring the character of the doctor's letter, and stating that, having made inquiries, they found the milk-can to be coated on the inside with separated milk in the last stage of decay. This man is a doctor, and, presumably, the Medical Officer of Health for the district."

2298. You have recently abstained from stating where the district is?—It would do no good to state it.

2299. Sir JOHN LIVERMORE.—Is the doctor still a sanitary officer?—I cannot tell you that.

2300. The CHAIRMAN.—I think it is just as well that it should be definitely understood how far the Department of Agriculture is responsible for the manner in which these creameries are conducted, because I am rather inclined to think that the feeling prevails throughout the country generally that their supervision is of such a nature as to ensure that the work is carried out under the best and most hygienic conditions, and with the utmost regard for cleanliness; and if the Department's powers do not enable them to exercise that function, it is as well that it should be clearly understood by the country at large.—At the present moment we have absolutely no compulsory powers. The scheme under which our instructors visit creameries is a voluntary scheme. The creameries have to apply to us for their services, and where the creamery proprietors do not apply the instructors cannot go. If the owners of the creameries say they do not want the services of the instructors we have to withdraw. One or two other extracts I have will, perhaps, explain the difficulties. This is a memo. from one of the inspectors:—"When visiting 'X,' 'A' stated that the manager of the 'Y' auxiliary refused the milk of two suppliers as being sour and unfit to pasteurise, and that they went straight to the 'Z' Creamery and had it accepted, and 'A' actually took very strongly over the matter. This district is very liable to typhoid, and the creameries are supposed by the Sanitary Authority to be pasteurising."

2301. Mr. CAMPBELL.—If one creamery rejects the milk another creamery will take it?—Yes.

2302. Mr. O'BRIEN.—Or milk purchaser?—Yes.

2303. It may be sent for condensing purposes?—Yes.

2304. The CHAIRMAN.—What proportion of existing creameries submit to be examined by the Department. I use the word "submit" advisedly, because apparently you have no power to go into the creameries without permission?—You may get it, what number of creameries "request" the inspection of the Department.

2305. Prof. MERRIAM.—I take it the Department's

* See Appendix C, page 381.

Inspectors are only admitted into the creameries as a matter of grace?—Yes. There are about 390 creameries in Ireland, and of these 390 are receiving visits from our Inspectors, who are eight in number.

2496. The CHAIRMAN.—So that little more than 35 per cent. of existing creameries receive any attention whatever from the Department?—Our Inspectors visit 356.

2497. Lady RIVERHEAD.—Do you mean co-operative and proprietary?—They are joint stock, proprietary and co-operative, and I have included branches of the condensed milk factories in the total of 700.

2498. The CHAIRMAN.—Have you been able to determine as a result of your inspection whether the amount of milk being sent in to the country is increasing or diminishing?—Speaking generally, I should say the quantity of milk received at the creameries is increasing, although, here and there, there may be a slight decrease; but taking the creameries as a whole, I am of opinion that the milk supply is increasing. Of course, without accurate statistics it is difficult to make a definite statement. It is a general opinion based on an inspection of over half the creameries.

2499. Can you give me any information as to the number of creameries that work throughout the entire year?—In the old days, that is, in 1890 to 1895, in the County Limerick we frequently had to close down for two or three months because there was no milk. We would work up to about the 31st December, and probably close down until the middle or end of March. At the present time there are very few creameries which close altogether in the winter. They may only work three or four days in the week, but they do not close down, unless in the case of an auxiliary with a small supply. Even in County Limerick they now keep running throughout the winter.

2500. When you speak of work, do you mean the treatment and reception of milk?—Yes.

2501. They engage in other trade as well?—I am speaking of the milk.

2502. Do you know if it is the custom of creameries to supply milk to local consumers retail?—When I was in charge of creameries we did so, and I understand that at the present day most creameries will sell milk in small quantities to local consumers. I think I gave in my summary of evidence an instance that I came across. I am aware of two creameries, from one of which the sales of new milk and separated milk amount to 10s. a day, and from the other to £12 to £15 a week in summer, falling off to £3 to £5 in winter.

2503. What I want to know is, does the price charged by the creamery affect the amount of the retail demand; when their prices go up does the demand diminish?—I cannot say that the demand goes off very much, because most creameries will sell at from 4½ to 6d. per gallon. In some cases they charge perhaps 2d. a quart, but as far as my knowledge goes, and as far as I have heard from all our Inspectors, the creameries are quite willing to sell milk to suppliers.

2504. When you say "suppliers," do you mean applicants for supplies at the creameries rather than those who are supplying the creameries with milk?—I should have used the word "applicants" instead of "suppliers."

2505. With regard to the treatment of the milk, can you tell the Commission exactly as to what process that milk is subjected before it is returned to the supplier?—After the milk has been examined in the supplier's emptied can, it is turned into a weighing machine or measuring drum, and the quantity is determined either by volume or weight. It is then strained into a large receiving tank, which may hold from 300 to 400 gallons. The milk is sampled before it is turned into the milk tank. From this receiving tank the milk is run through pipes into what is called a heater. In this heater it may be raised to a temperature of from 120 to 135 degrees, according to the process at the creamery. If they are pasteurising whole milk the temperature they adopt is at least from 176 to 178 degrees, but a number of them, in order to make sure that the milk is thoroughly pasteurised, run the temperature up to 295 degrees.

2506. Dr. MOONSHAB.—For what length of time?—It varies. It may be as long as half a minute, or it may be for ten seconds.

2507. At a temperature of 195 degrees?—Yes. It depends very much on the quantity of milk the heater will hold while working. In cases where they are not

pasteurising, in summer they will probably heat the milk to 130 degrees, and in winter from 140 to 160 degrees. After heating, the milk is run through the separators and divided into separated milk and cream. The separated milk in some cases, in very few cases though, is pasteurised and raised to 195 degrees, frequently cooled after that and conveyed to the separated milk tank. Where there is no pasteurising of the separated milk, it is simply conveyed to the distributing tank, and is weighed out to the suppliers in proportion to the quantity of milk they had delivered.

2508. It has been represented to the Commission that separated milk has been the means of disseminating germs of disease in the districts in which creameries have been working; would it surprise you to hear that statement made?—I have heard the statement made frequently, and in certain cases I have not the slightest doubt that where pasteurisation has not been adopted, and where milk from a fever-stricken house or tubercular milk is supplied to a creamery, it may be, and possibly has been, the means of spreading disease either amongst human beings or cattle. We advise all creameries, and I have done so for from fifteen to eighteen years, to pasteurise their milk or their separated milk. I may mention that I think I was the first person to pasteurise whole or separated milk in Ireland.

2509. Miss McNEILL.—You say that the separated milk is brought to 295 degrees; for how long is it kept at that?—It may be ten seconds in the heater, and then there may be another twenty seconds by the time it arrives at the top of the cooler, but during that time it would have been cooling slightly, and it would probably be only 195 degrees when it reached the top of the cooler.

2510. So that it is practically raised to 295 degrees for about half a minute only?—Yes, in some cases; less in others.

2511. Mr. JOHN LESTER.—How many creameries pasteurise?—Out of the 390 that our Inspectors visit 171 have pasteurising plant.

2512. The CHAIRMAN.—Here again we have evidence that there is apparently no uniformity in the methods practised by the different creameries; some pasteurise and some do not?—That is so.

2513. Mr. JOHN LESTER.—Do they pasteurise the separated milk before sending it out in addition to the previous pasteurisation?—No, one pasteurises twice. After the whole milk is heated to a temperature of 185 degrees or over, there is no need, to my mind, to heat it further, and in no country, to the best of my knowledge, is pasteurising done twice. Out of these 171 creameries, forty-three regularly pasteurise the whole milk; thirty-seven regularly pasteurise the cream; and one regularly pasteurises the separated milk; the others do it irregularly.

2514. Mr. JOHN LESTER.—The one does not pasteurise the whole milk or cream?—That might be inferred, but I cannot exactly say. They may pasteurise the cream separately and the separated milk separately.

2515. The CHAIRMAN.—From your experience, do you think it would be advisable for the protection of the public health that a uniform method should be laid down and insisted on in the treatment to which milk is subjected in all creameries?—As far as pasteurisation of the separated milk goes, I am in favour of all creameries doing so. Personally, I may say, I am a great believer in the pasteurisation of the whole milk, and for this reason, you cannot pasteurise dirty stale milk. It clogs the machinery.

2516. Mr. WINNIE.—That is an automatic check against stale milk?—Yes. I may say that there are two distinct systems followed. In the North, for instance, the Saturday night's and Sunday morning's milk is kept at home and churned. In the South the creameries in any time run even twice a day on Sundays, and we had to be there on Sunday morning and evening; but it was found that the milk could be kept quite sweet, and the machinery ran once a day only, and that is the general custom at the present moment. The few creameries that are receiving milk twice a day will drop it in time on account of the increased cost and expense and the difficulty of closing the plant between times. Coming back to the point about Sunday's milk, if it is not churned at home, it may be held over until Monday, and it may have gone slightly sour and be not sufficiently sweet to stand the heat of pasteurisation.

2517. Mr. O'BRIEN.—Though not what you would call dirty?—Yes. It may be sweet and clean, but not sweet enough to stand the heat in the pasteurisation.

2428. Miss McNEILL.—You said there was a difficulty in pasteurising dirty stale milk?—Yes.

2429. There is no difficulty in pasteurising dirty milk if it is not stale?—No; that is right.

2430. As a matter of fact, dirty milk will keep a little longer after pasteurising?—That is quite true. My own experience is that where pasteurisation of the whole milk is followed it invariably leads to greater care being taken of the milk, and it has to be kept clean.

2431. I was not thinking of your particular point with regard to creameries, but just any misunderstanding should arise as to the effect of pasteurising, I was speaking more with regard to milk that is sold whole?—You may take whole milk, clean it, and pasteurise it.

2432. Mr. CAMPBELL.—I do not think you have quite answered the Chairman's question as to whether you think pasteurising should be universally adopted?—Personally, I am in favour of universal pasteurisation.

2433. Prof. MITCHELL.—Of the whole milk?—Yes, and certainly of the separated milk.

2434. Mr. O'HENRY.—If you pasteurise the separated milk, does not the butter-making process destroy all germs?—I would not like to give an opinion on that myself. Recent investigations say not. I would refer to articles on "The virulence of tubercle bacilli in Butter and Cheese," in the 26th Annual Report of the Bureau of Animal Industry, Department of Agriculture, U. S. A.

2435. Is it not also the opinion of a good many people that raising the milk temperature to pasteurising point affects the quality of the butter afterwards?—Personally, I have seen perfect butter made from milk that was heated up to 200 degrees regularly, and not as an experiment.

2436. Mr. CAMPBELL.—Is the Danish milk heated before it is separated?—Their custom is to heat the whole milk to a temperature sufficient to enable them to separate the milk efficiently, and then they pasteurise the cream and the separated milk separately; but the present tendency is to pasteurise the whole milk as it comes in.

2437. All the milk in Denmark is pasteurised?—Yes.

2438. Is it compulsory?—Yes. The veterinary police walk into the creamery and take samples, and send them to the Laboratory in Copenhagen, where the samples are examined to see whether they are pasteurised or not. It is a simple test that is applied, and could be applied by any creamery manager.

2439. Prof. MITCHELL.—Would you like powers something like that yourself?—I would like to see pasteurisation made the rule. I think it would be a good thing for the country. I am strongly in favour of it and would like to see it made compulsory.

2440. The CHAIRMAN.—Do you think, from your observation, that pasteurisation is ever dispensed with because of the difficulty of getting the milk through the machine, and because it will lead to trouble?—Yes, I have frequently known it to be dispensed with because of the stale milk.

2441. Would that milk be agreeable to the palate?—Yes, and give no indication that it had not been recently drawn from the cow. In fact, a good many managers who know their suppliers pretty well will, when they find a man bringing a double quantity on Monday morning, and they are doubtful about it, take a small quantity and heat it in a can and see if it will crack.

2442. Sir JOHN LESTANGE.—Is that the only test?—There are the alcohol and the acidity tests. The test is very simple.

2443. If pasteurising were made compulsory, what would happen to the stale milk that now arrives on Monday mornings?—It would disappear.

2444. It would be kept at home?—No, the farmers

would probably take greater care of the milk—cool it, so that they would keep it under better conditions.

2445. Miss McNEILL.—Milk that is produced under clean conditions may last some days?—Yes, especially at this season.

2446. At any time, if it is kept cool?—Yes. We have not, of course, in this country, so no farmer can use it; but in Denmark, all the big milk distributing companies give out to their milk suppliers.

2447. Sir JOHN LESTANGE.—In the North they often churn milk themselves?—Yes, Saturday's or Sunday morning's milk. They want a certain amount of butter during the week, and they think that is as easy a method of getting it as buying it at the creamery.

2448. Miss McNEILL.—How does that affect the consumer with the creameries?—Not at all.

2449. Mr. WILSON.—In your inspection you go through a number of creameries which have no pasteurising plant?—Yes.

2450. Your figures leave 287 creameries inspected that have no pasteurising plant?—Yes.

2451. And there are 300 other creameries that you don't inspect?—Yes.

2452. Is it the presumption that few, if any, of these contain pasteurising plant?—I don't think many of them do.

2453. Probably out of all the creameries in Ireland, with the 171 that you know, not more than 200 altogether possess pasteurising plant?—Put it between 250 and 280 creameries which may be able to pasteurise either the cream or separated milk or both together as milk.

2454. Sir JOHN LESTANGE.—Are there any difficulties in the way of making it compulsory?—The chief difficulty is the expense of installing the plant. You would have to give time for it to be done. I would object to the issue of a rule that to-morrow they should all pasteurise. If you say it is two or three years' time it would be better. You must give the creamery owners time to gather the money to buy the larger boiler and the larger milk heaters, and so on.

2455. Mr. WILSON.—Can you give us any evidence as to the approximate cost, per hundred cows or gallons, of pasteurising plant?—I have no figures here.* It varies. The cost of installing the plant might be as low as £20, and it might run up to £200 or £300, when a larger boiler has to be installed.

2456. The CHAIRMAN.—Can you tell the Commission what provision is made at the creameries you inspect for the cleaning of the milk vessels after the supplies are taken out?—At most of the creameries that have pasteurising plant there are steam jets provided, and in some cases water jets as well, so that the suppliers can rinse their cans and then send them after they have delivered their milk, but it is a difficult matter to get them to do so.

2457. And there are no means of compelling them?—No, unless the creamery owner makes a rule to that effect. The Department have no means.

2458. As a matter of fact, you have no knowledge of any creamery that has made it imperative on the persons supplying milk that they shall cleanse their vessels before the separated milk is returned?—I know of some creameries at which it is done; but whether they make it imperative on that the suppliers have found it to their advantage to cleanse the cans I cannot say. This cleansing causes that the can gets a good scalding at least once a day. There are a number of cans or milk churns used over the country generally which are badly designed. The milk churn should be designed so that it can be easily cleaned, and if not easily cleaned you find it becomes dirty. One should be able to reach to the bottom with the hand, and the corners should be rounded, and the whole can should be dipped in melted tin. I have seen a narrow measuring strip inside the churn, and on taking this off, often found that the

* The witness subsequently furnished the following statement:—

I have since worked out the approximate cost of pasteurising the milk at a creamery, and find it as follows:—

	Per Gallon.	Per lb. of Butter
(a) Increased running cost	d. -0134	d. -0312
(b) Increased capital charges, Interest, Depreciation, and Wages at rates standard for cleaning, &c.	-004 to -048	-0054 to -0128
Total cost (a) and (b)	.. .. -0074 to -0614	-0076 to -144
or	1/25th to 1/17th of a penny.	1/11th to 1/7th of a penny.

The charges for (b) are materially reduced if the amount of milk treated is increased. Cost of heating, &c., would be in addition to above.

soldering had been pinholed in one spot, and behind was a mass of putrid milk. I don't think there should be any of these strips soldered on the inside of the vessels.

2459. Do you think that there are always satisfactory means adopted by creameries as to the disposal of the refuse?—In most cases it is satisfactory enough. In a few cases we have been asked to advise as to the better disposal of the sewage, because the creamery had been changed with polluting a river. The separator slimes, which is often thrown out and eagerly devoured by dogs, pigs, fowl, etc., should be burned, as is the law in Denmark. I have frequently seen dogs in a most emaciated condition eating this stuff, and have made inquiries which satisfied me that their condition was due to eating the slimes, and that they were in the last stages of tubercular disease. Several valuable dogs died as a result of this practice.

2460. Prof. MERRIM.—What is the advice given in such a case?—It will depend on the situation of the particular creamery. Where the situation is congested, the only remedy is a large covered septic tank and bacterial beds, but the septic tank must be of such a capacity that it will hold from ten to fourteen days' flow of the sewage.

2461. Sir JOHN LEVINGHAM.—Is not there some process at present in Dublin for treating the sewage into fertiliser?—Yes. So far as it has been applied to purify creamery sewage it has not, in my opinion, been a success. It is in the experimental stage at present, and may be improved.

Mr. CARRUTHER.—It is carried out experimentally, but there is a royalty to be paid before it can be put into the creameries, and the creameries do not like to pay that royalty.

2462. The CHAIRMAN.—Have you ever seen in your travels throughout the country any definite results from the inspectors appointed by local authorities under the Dairies and Cowsheds Order?—I have not seen them personally; but the Order was not compulsory when I was making creameries, and I have not heard of any definite results, but there may be there.

2463. Have you in your inspections discovered faults or omissions which, had the Dairies Order been rigidly enforced, could not exist?—The Dairies Order applies to the farmer's premises, and we do not visit these officially.

2464. So far as you know, the public health authorities do not insist on hygienic conditions being observed in the disposal of sewage or the cleanliness of premises?—I would not like to say they don't. No cases where they enforced these have been brought under my notice.

I want to know exactly how far the existing powers are availed of by the local authorities. That was the reason I asked the question.

2465. Lady EVERARD.—I would like to draw your attention to Article 1, section 5, of the Order, which says:—"A person who carries on the trade of cow-keeper or dairymen for the purpose only of milking and selling butter or cheese, or both, and who does not carry on the trade of purveyor of milk, shall not, for the purpose of registration, be deemed to be a person carrying on the trade of cow-keeper or dairymen, and need not be registered." One of the officers of the Local Government Board said that referred to creameries. Is that your experience?—That refers to the home butter-making, I believe. There is another paragraph which, I think, refers to creameries. If you look at the interpretation clause, Article 98, you will find the expression "cow-keeper" includes "any person who keeps a cow or cows, and continuously or regularly or habitually milks or supplies the milk of such cow or cows, or the butter fat contained in it, to any person, creamery or butter factory engaged in the making of butter, cheese, cream, or condensed milk."

2466. Quite so. That does not say that a creamery itself need be registered?—No. As far as my knowledge goes, a creamery need not be registered at all from the point of view of public health, unless it sells whole milk.

2467. Prof. MERRIM.—Is it not registered as a factory?—Yes, under the Factories Act.

2468. And is liable to be inspected by the Factory Inspector at any time?—Yes. They prescribe that it shall be whitewashed periodically, and that the machinery shall be guarded, and so on. Their inspection is more from the point of view of the safety and health of the employees than that of the public health or quality of the product.

2469. Sir JOHN LEVINGHAM.—It is proposed that dairy-keepers and milk-producers should be licensed instead

of registered. If that were done, would it not be advisable that creameries should also be licensed?

Mr. O'BRIEN.—At present the creameries only come under the Dairies Order if they sell milk.

The CHAIRMAN.—Sir John's suggestion is that the creameries, being engaged so largely in the milk trade, should come under the same provision as those who carry on a small retail trade?—From the Departmental point of view I don't think the matter has been considered, but, personally, I am in favour of licensing dairymen and creameries.

2470. Sir JOHN LEVINGHAM.—Would the creamery people be likely to object?—Some would, and others would probably welcome it. It is not a question that has been discussed amongst them at all.

2471. The CHAIRMAN.—You are familiar with the districts in which creameries are situated, and you have experience of the local conditions previous to the introduction of the creamery system in these districts. Will you tell us how far you think the introduction of the creamery system has affected the supply of milk generally to the hinterland districts?—Might I put in a point referring to the last question before I answer that? You will notice that in Article 1, Clause 5, of the Dairies and Cowsheds Order, the farmer who makes butter at home need not be registered, but he may sell buttermilk and separated or skim milk. That is certainly undesirable.

2472. Mr. WILSON.—In spite of the interpretation clause in Article 98, that the phrase "milk" is taken to mean whole milk and sweet milk only?—Yes, I think so. Under the Food and Drugs Acts they are quite different articles; and in the legislation that is being proposed it has been suggested that milk shall include cream, buttermilk and separated milk in order to cover this point.

2473. The CHAIRMAN.—Another witness stated that there was some ambiguity on this point, and he suggested that the term "milk" should cover all the products of milk?—Yes, it should. It is absurd that a man may deliver buttermilk or separated milk or skim milk and not be registered as a vendor who should come under the Order.

2474. Would you now kindly return to the question I put as to the effect of creameries on local supplies generally?—As far as my general experience goes, I do not think there is any greater difficulty in buying milk at present than there was in the early days.

2475. Previous to the introduction of creameries?—Yes, as far as my experience goes. My first experience in Ireland was with the introduction of the creameries, and I did not pay as much attention to the home butter-making as I might have done; but there were difficulties even then in my district among the labourers regarding the supply of milk during the winter.

2476. Winter dairying was not in progress then any more than at present?—It was less so; because now they are producing a little more milk, and the creameries are keeping open throughout the winter.

2477. A little more is produced, but whether it is available for the poorer classes in the districts is a matter on which you cannot give an opinion?—As far as my opinion goes, I think it is available to the poorer classes now so then. They can go to the creamery and buy a pennyworth.

2478. Miss McNEILL.—Those who are near the creameries?—Yes. I do not know that the farmers have changed at all. They are quite willing to sell milk as long as it is paid for, but they like to be paid cash. I have heard up and down the country that people wanted milk for nothing; that they wanted six quarts to the gallon sometimes; and now and then there are disputes between the labourer and the farmer as to the trespassing of cows, goats, &c.

2479. Of course, it is quite a common thing for strained relations to exist between people, and whilst these strained relations last they do not trade; but, speaking from your experience, you do not believe that the introduction of the creamery system has in any way been responsible for the restriction of the distribution of milk amongst the poorer classes in the districts where creameries have been established?—I do not think so. They can buy it at from 1d. to 2d. a quart for cash at the dearest times from almost any farmer. The objection that a farmer making butter at home may have to selling milk to casual labourers, etc., is that he is thus brought under the operations of the Dairies, Cowsheds and Milkshops Order. A farmer supplying milk to a creamery is already under the provisions of the Order, and so the sale of a small quantity of whole milk to

labourers, etc., makes no difference to him. In the Milk and Dames Bill, introduced by the Hon. J. Burns, on 26th May, 1909 (Bill 216), which applied to Ireland, the following clause occurs:—"Clause 11 (1) In this Act.—The expression 'dairy' includes any farm, farmhouse, cowshed, milk store, milk shop, or other place from which milk is supplied, or in which, for purposes of sale or manufacture into butter or cheese, milk is kept or used. The expression 'dairymen' includes any cow-keeper, purveyor of milk, or occupier of a dairy, but shall not include a person who only sells milk of his own cows in small quantities to his workmen or neighbours for their accommodation." The Bill has not yet passed, and I do not know whether any alterations have been made in it.

2480. It has been represented to the Commission already that the dealers of the milk suppliers are so keen to send large quantities to the creameries that they do not even retain a sufficient quantity at home for the maintenance of their house and families?—I have seen it stated, but what information I have is opposed to that view. They supply the last drop to the creamery after they have provided for their home requirements; but so people run their own families short from a desire to send it to the creameries.

2481. Sir JOHN LESTER.—In your opinion, the existence of the creamery is tending rather to increase the supply and improve the conditions under which the milk is produced?—On the whole, yes.

2482. Dr. MOONSHAN.—What proportion of the milk supply of Ireland would be absorbed by the creameries?—I have not got any figures here. I have estimated the milk production of Ireland from the number of cows.*

The CHAIRMAN.—I am quite sure it would satisfy Dr. Moonshan if you gave a percentage.

2483. Dr. MOONSHAN.—How much is left for ordinary consumption?—I can draw up a statement if you desire it.

2484. The CHAIRMAN.—I would like to know your view on this question. It is well known that the creamery owners make a contract requiring the suppliers to send them the entire milk they produce for a fixed period?—That is a new rule introduced lately into the rules for Co-operative Societies.

2485. Would that create a further difficulty with regard to the producer of milk selling retail, when he had undertaken to sell his entire supply to the creamery?—I do not think it would be interpreted in that way by anyone. I do not think that any manager or committee would interpret it in that way.

Mr. O'BRIEN.—It is simply to guard against his going over to another creamery.

2486. The CHAIRMAN.—Do you think it is possible to establish a system of winter dairying in Ireland which would be economically sound?—That is a question which I think you should put to the next witness from the Department. It deals with the cost of the production of milk on the farm.

2487. I do not want to press you. You are aware that milk is sent by rail from different parts of the country for sale?—I have seen it sent from Middleton, County Cork, to Dublin.

2488. And you are also aware of the fact that some of the milk produced in some of the southern counties of Ireland is sent to England?—Yes; to Cardiff, Swansea, and London. London gets its milk supply from all over the United Kingdom.

Mr. O'BRIEN.—Tipperary sends milk to London.

2489. Mr. CAMPBELL.—It is only since the drought came that any large quantity has gone?—It is a growing business. It has, perhaps, developed more this year than usual, but it is a growing business.

2490. The CHAIRMAN.—It has been carried on for two or three years?—Yes.

2491. Sir JOHN LESTER.—Have you any knowledge of the conditions in which the milk arrives?—I have seen it arrive clean and good, and I have seen it sent off from here clean and good.

2492. Were there refrigerating cars?—It is cooled very low before it is shipped; perhaps down to 40 degrees Fahr.

2493. The CHAIRMAN.—Is the milk sent by creameries or private suppliers?—From creameries.

2494. Dr. MOONSHAN.—The raw milk?—Yes. It might in some cases be dealt with means of a separator before it is sent off.

2495. The CHAIRMAN.—But it is not pasteurised?—In some cases it is, but not always. It depends on the buyer. If he desires it to be pasteurised it is pasteurised at a low temperature for perhaps half an hour.

2496. Sir JOHN LESTER.—What would the temperature be?—Something from about 140 to 160 degrees.

2497. The CHAIRMAN.—Can you give the Commission any idea of the increased price charged for pasteurised milk as compared with non-pasteurised milk?—There is no difference in the price on account of the pasteurising. Some firms want it pasteurised, and offer the same price as other firms who do not want it pasteurised.

2498. And so far as you know, nothing additional is added to the contract price because the buyer requires pasteurised milk?—Not to my knowledge. It costs very little more to pasteurise the milk.

2499. The reason why I press the question is, it was rather suggested by some of your answers that the cost of pasteurising in some degree prevented creamery proprietors from subjecting milk to pasteurisation?—It is the cost of installing the plant—the capital outlay—that is the difficulty, not the running costs.

2500. Dr. MOONSHAN.—Do you say the milk is separated?—It is separated by a separator. That means that you put a special hood on top of the machine, instead of the ordinary hoods, which divides the separated milk from the cream. You can buy a cleansing bowl, which is the best way of cleansing milk that I know of.

2501. Mr. O'BRIEN.—You can use a hand separator?—Yes.

2502. Dr. MOONSHAN.—Would that remove any of the fatty particles?—No. It is a regular practice to clean milk by centrifugal force instead of straining. It is much more efficient. These machines run at from about 5,000 to 6,000 revolutions a minute.

2503. Mr. WILSON.—Would that drive off the tubercle bacilli?

Prof. MERRICK.—Yes.

2504. Dr. MOONSHAN.—Is that an expensive machine?—A small hand separator would cost as low as £5; one to do 600 gallons of milk would be about £80 or £70.

2505. The CHAIRMAN.—Would it be possible to use a hand separator for the purpose you have indicated on the pastures where the milk is produced before the milk is sent to the city for distribution?—It would be possible to use it in the dairy.

2506. During the season that is past there has been unusual difficulty in keeping up the milk supply, owing to climatic conditions?—Yes; in certain places. As a matter of fact, I was in London some time ago, and I thought we might find a good market for Irish milk. I was surprised to find that the London market was glutted with milk from all parts of the United Kingdom. The two chief buyers of milk in London told me that they were actually glutted with milk. That was in October.

2507. And that was at the time when the consequences of the drought were being felt acutely in certain places?—Yes.

2508. You have given us an interesting table with regard to the number of milk cows in Ireland, and you have also given the percentage of the number of milk cows as compared with the ordinary number of cattle in the country?—Yes. [See footnote, p. 87.]

2509. The number of cows would seem to be fairly steady?—Yes.

2510. It is not increasing or diminishing at any extraordinary rate?—It is slightly on the increase.

2511. The year 1908 was the largest number you got in the cycle you deal with—1,586,237?—Yes. It is difficult to make comparisons between one year and another. You have to take these figures over a period. The tendency for them is to increase. They have increased so as a matter of fact.

2512. You have no figures to enable you to determine what the entire milk yield is?—Say you take the figures in this return as to the number of milk cows, you have to estimate the probable milk yield at, say, 400 gallons per cow; then you have to take the butter export and the probable home consumption; then you have to work backwards from that to find how much milk there is for consumption. I did that once.*

2513. Mr. CAMPBELL.—It is very unsatisfactory?—It is not very reliable.

* See Appendix D, page 361.

2514. **MR. JOHN LEVINGSTONE**.—Are there any figures to show the quantity of milk exported to London?—Yes, to Great Britain as a whole. I have them here in a table. It does not divide the milk into whole and separated milk. They are both labelled as milk. These are the figures:—

Year	*Whole and Separated Milk.	*Cream.
	wt. cwt.	wt. cwt.
1884	16,018	
1885	15,523	
1886	17,394	
1907	5,418	6,056
1908	10,676	5,664
1909	1,926	16,363
1910	6,306	13,669

*Prior to 1907 these descriptions were classified as "milk."

There was an extraordinary quantity of milk exported in 1908 compared with other years, but I think the tendency for it is to increase. And the same way with cream; there is a steady increase in that. In England the towns are encroaching more and more on the milk supply.

2515. Is there any export trade from the North of Ireland?—Yes, just as in the South. I think it is via Larne to Glasgow.

2516. **LADY RIVERDALE**.—It is an extraordinary thing that it should be worth while to market separated milk.

The **CHAIRMAN**.—For what purpose is it used?—I don't know what it is used for in Great Britain; but I think that separated milk as a food is not appreciated as it ought to be. Some people look on it as an absolutely worthless article. As a matter of fact it is one of the cheapest foods you can get at the present moment. I don't profess to be an expert on dietetics, but I would like to draw your attention to some figures on the subject. Milk is one of the most variable foods in quality. Here are some figures on that point:—

PERCENTAGE COMPOSITION OF MILK.	SEPARATED MILK.
Fat 3 to 4½ p.c.	1 p.c.
Proteids 3 to 4½ p.c.	3½ p.c. to 3½ p.c.
Sugar 4 to 5 p.c.	4½ p.c. to 5½ p.c.
Mineral matter 7½ p.c.	7½ p.c.

With regard to the food value of milk and separated milk, one gallon of milk will yield 3,224 Calories; one gallon of separated milk will yield 1,580 Calories; that is, separated milk as a food is about half the value of new milk. If we take the cost of each into consideration, then separated milk is a cheaper food when taken as part of a mixed diet. One gallon of milk costs 1s. 4d., and a gallon of separated milk costs 3d. in the country, say 6d. in the town. Then we obtain as milk 230 food Calories for 1d. in town, as compared with 263 food Calories for 1d. in town, and 790 food Calories for 1d. in the country from separated milk. Thus, for growing children, three to four years of age and upwards, separated milk, taken with other foods, so as to form a balanced diet, is an extremely cheap food. Here is a comparison of separated milk with beef: 1 lb. of lean beef, e.g., roasted steak, contains 76 to 108 lb. of proteids and yields 850 Calories; 2½ to 6 lb. of separated milk will furnish nearly the same amount of proteid and have about the same value in Calories as a food, 1 lb. separated milk yields 150 Calories and costs 6d. in the town, 3d. in the country; 1 lb. of steak yields 850 Calories and costs 8d., so that the same food value can be purchased—on separated milk—at a cost of 3½d. in town, 1½d. in the country; or as a food, separated milk of equal value to lean beef is two to five times cheaper.

2517. **DR. MOOREHEAD**.—You have to consume so many more pounds?—I don't say that you should depend on separated milk alone. In valuing the separated milk in the town, I have assumed that it costs 3d. per gallon in the country, and I have added 4d. per gallon to cover cost of carriage, distribution, and profit, and that is more than a sufficient amount.

Separated milk during the summer is often purchased at as low as 4d. a gallon in the country. A comparison of the cost between separated milk and tea as beverages is as follows:—

1 pint of tea will cost:—	
½ oz. to pint at 3s. per lb.	375d.
Sugar, at 3d. per lb.	134d.
Milk, ½ oz.	100d.
	609d.

1 pint of separated milk will cost:—	
At 3d. per gallon in country	26d.
At 6d. per gallon in town	76d.

So that separated milk is a much cheaper beverage in the country, and very little cheaper than tea in towns. While tea is a beverage only, the separated milk has a food value. This is the comparative cost of two meals of approximately equal food value:—

10 oz. of bread,	1d.	8 oz. of Biscuits, 8 oz.
1 pint of separated milk,	26d.	2 oz. of Potatoes, 2 oz.
		Turnips, 1 oz.
		Bread, 4 oz.
		Butter, ½ oz.
		Coffee.
		Milk, 1 oz.
		Sugar, ½ oz.

Total cost	1'26d.	8d. to 1s.
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Thus, at a cost of 1½d., you have a meal with a food value equal to that obtained for 8d. to 1s. at a restaurant. Potatoes could take the place of bread in the first meal, and practically this is the old diet of butter-milk and potatoes in the country.

2518. **MR. JOHN LEVINGSTONE**.—There is no doubt the accuracy of these figures could not be disputed, but the use of separated milk for children would be a serious matter if you did not restore the properties taken out of it?—I think it could be used much more than it has been as part of the diet of children three to four years old and upwards.

2519. **MR. O'BRIEN**.—Have you got the food value as compared with potatoes?—Not here.

The reason I asked the question was that Dr. Moorehead remarked on the amount of separated milk you would have to get to equal the value of beef, but beef is rather a rare thing in the country, and potatoes are generally used.

2520. **DR. MOOREHEAD**.—Do you know if the calculations were based on milk that was pasteurised?—There is practically no difference in the chemical composition of separated milk before and after it is pasteurised. I don't suppose you would find any authority that would undertake to give you a percentage of the enzymes in milk. I understand that some food authorities consider that pasteurised milk is of advantage in this way: when new milk or separated milk is gulped down into the stomach it forms a huge ball of curd, which makes it difficult to digest, but that is not so likely to happen in the case of pasteurised milk. Milk or separated milk should be sipped, or taken with other foods. I simply put that before you as the opinion of some of the authorities on dietetics I have read. For example, see "Food and Dietetics," by Hutchinson, pp. 129-133.

2521. **THE CHAIRMAN**.—Have you in your experience ever discovered that any trade has been established by oratoricism for the sale of separated milk as food, other than the return of it to the person supplying the whole milk?—I know that they sell it as food at some of the creameries.

2522. Is it sold retail, or is it sent into a large centre of population to be sold retail there?—I know there is a good deal of it sold wholesale and retail. Separated milk comes to Dublin. It is partly used for baking by confectioners, in biscuit-making, and tins of that kind, but I don't know of any one of it being generally sold as a food in Dublin, and I think that is a pity.

2523. Is it possible for any vendor of whole milk to sell separated milk in the same shop?—Yes, as long as he sells it as separated milk.

2524. **MR. JOHN LEVINGSTONE**.—In Switzerland separated milk is used by medical men for certain diseases. You give some interesting figures in your draft of evidence as to the number of goats in this country at the present time. I see you give the figures since 1900, viz.:—1900, 306,078; 1901, 312,406;

1929, 303,544; 1933, 300,130; 1934, 290,220; 1935, 284,029; 1936, 297,342; 1937, 247,247; 1938, 286,286; 1939, 252,041; 1940, 242,614. Have you any special knowledge as to the yield of milk by the goat?—I was brought up on goat's milk, and all my surviving brothers and sisters were. I remember as I grew up having to look after the goats, and as far as my memory serves me, it was something like 80 to 100 gallons of milk a year that we got from each of the goats. Two were white Swiss goats. I cannot say that I have gone into the milk yield of goats very closely. My figures show an extraordinary reduction in the number of goats. I think the goat is a most useful source of milk for the labourer or the man who has no cow.

2525. Have you any idea of the value of the milk, as compared with cow's milk?—I think it is richer, but I have not made any analyses in recent years.* I did so some years ago, and there was practically nothing in the difference, as far as I remember. They used to send goat's milk to the creamery, and you could not tell the difference.

2526. And it is not rejected there?—You could not tell the difference, if it was clean.

2527. Miss McNeill.—And not too old?—Yes. I obtained goat's milk for my children in Dublin. I had to give up its use lately, as I could not get it.

2528. Sir JOHN LESTER.—Where were the goats kept?—One was kept along the railway embankment, the other was kept out in the country.

2529. The CHAIRMAN.—How is that decrease accounted for?—It is absolutely a matter of opinion when the decrease may be attributed to. I am of opinion that the question of trespassing and the damage by goats may have something to do with the decrease.

2530. Do you know anything of the conditions under which milk is condensed in this country?—I have been through condensing factories. I have been through several factories, and in connection with my duties I have had to work in one.

2531. Is that an increasing or diminishing trade?—According to the experts, it is an increasing trade.

2532. Is the price paid by the condensing factories in any way governed by the prices paid by the creameries?—Yes. They have to pay a price equal to or more than the creameries pay. In parts of counties Limerick, Tipperary and Cork you have the condensing factories and the proprietary and co-operative creameries competing for the milk.

2533. In the case of milk sent to the condensing factories, is it boiled?—Yes, at about 109-120 degrees Fahr. in a vacuum pan.

* Statement subsequently supplied by Witness.

ANALYSES OF GOAT'S MILK.

Observer	Water	Fat.	Sugar.	Proteids.	Ash.
König (Average) ..	85-71	4-73	4-46	4-29	-76
Moser and Schindler ..	86-48	4-63	4-50	3-71	-79
Reichmann ..	85-5	4-89	4-00	5-00	-73
Péris ..	86-75	5-25	3-60	3-64	-66
Richmond ..	86-76	3-78	4-99	4-10	-87
Voscher ..	84-48	6-11	4-88	3-94	-79

The goat's milk is slightly richer in fat and proteids and poorer in milk sugar than cow's milk. As a whole goat's milk contains more dry matter than cow's milk, and is thus of greater value as a food.

Goats being stated to be practically free from tubercular disease, and the fact that goat's milk coagles in very light fakes, which are soft, very friable, and soluble, as compared with the curd of cow's milk, renders goat's milk extremely valuable as a food for infants.

¶ The witness subsequently furnished the following statement:—

MANUFACTURE OF CONDENSED MILK.

The temperatures used in the case of condensed evaporated milk, which is the kind most generally manufactured in Ireland, are as follows:—

The milk is separated at a temperature of 175-185° F. The separated milk is then run into a holding pan at a temperature not less than 170° F., and brought up to 212° F., when the sugar is added. The temperature may rise to 234° F., but the sugar must not be held at this temperature for too long, or a brown tinge is given to the milk, which reduces its value. The mixture of separated milk and sugar is then drawn into the vacuum pan and reduced to its value. The mixture of separated milk and sugar is then drawn into the vacuum pan and reduced to its value at a temperature of 100 to 120° F., the liquid when condensed sufficiently being drawn off and cooled. It will be noted that while the temperatures reached in the condenser are too low to have any great germicidal action, the prior treatment in the pan where the sugar is added should be sufficient to destroy all bacterial life.

2534. How long does it remain at that temperature?—Until it is reduced to about one-third of the original volume.*

2535. My reason for asking that question is that I have seen milk conveyed to condensing factories in certain districts in vessels that were not appearing to look on?—I have seen milk go to all sorts of places in the same condition.

2536. Prof. MERRAN.—Do you think the milk as treated is sterilized?—From the medical point of view, I would not like to answer that. It is not sterile. For instance, there is a good deal of trouble, or there has been in the past, with blown milk. It is caused apparently by a wild yeast, and the heat does not seem to be able to destroy it, and whether that applies to the bacteria causing various diseases I cannot say.

2537. You were speaking about undesirable vessels, in reply to the Chairman?—I have seen milk carried in huge tanks, which cannot be properly cleaned; and why makers don't design a tank which can be easily cleaned is more than I know. The tank I refer to could not be thoroughly cleaned unless you put a young lad inside it, and I doubt if it could be done even then.

2538. Do you know anything of the supervision that is exercised over the supply of milk to condensing factories?—There is no supervision except that of the owners and receivers of milk on the platform. And milk may be accepted under any conditions they please.

2539. You sometimes see stale milk in that particular factory?—I have known stale and dirty milk to be sent to condensed milk factories.

2540. That which had been condemned by creameries?—I have been told that. I know that milk has been sent to condensing factories that could not be boiled without the addition of soda or something of that kind, and that such chemicals have been used in condensing milk of that character.

2541. Mr. CAMPBELL.—I have known people do it.—You have to reduce the acid before you can condense. It would crack in the condenser if you did not add soda.

2542. The CHAIRMAN.—There is an injury to milk when subjected to the various preserving processes?—I do not quite gather the point of the question.

2543. Some of the scientific experts when asked if milk could be preserved in any form in which it would retain the properties of fresh milk, stated that all processes by which milk was preserved injured it in a certain degree, but that in a mild expression as to what may happen. So it is quite possible that stale milk, when chemically treated, might be used as condensed milk?—I know that is so. I do not know of any

MEAN COMPOSITION OF COW'S AND GOAT'S MILK BY RICHMOND.

Observer.	Water.	Fat.	Sugar.	Proteids.	Ash.
Cow	87-19	3-90	4-75	3-40	-75
Goat	86-64	4-63	4-22	4-35	-76

method of preserving milk by which you can keep it without destroying some of its properties, even taking dried milk.

2544. You subscribe to the view that any process to which milk is subjected for preservation is injurious to its constituents?—I do not say injurious, but it alters some of them. It would remove or alter some of the constituents.

2545. Sir JAMES LAMONT.—If it kills the lacto ferments it would be an injury?—You would not call that an injury from the point of view of a new-milk dealer.

2546. What about the enzymes?—They are practically destroyed in all methods of preserving milk that I know of. I do not think they even escape when you adopt low temperature pasteurisation. They are partially, if not wholly, destroyed in that case.

2547. The CHAIRMAN.—One general question, in conclusion. I take it that you are of opinion that it is immensely desirable, for the protection of the public health, and in order to secure to the public that they are getting an article that is dealt with under purely hygienic conditions in a factory, that some uniform code should be laid down for the guidance of the managers, and with regard to the supervision of creameries?—I think it would be desirable that there should be a certain amount of supervision. There would be a difficulty in laying down a code, although I may not be thinking of the same thing that you are. When I speak of a code, I think of a lot of rules and regulations. I am rather against precise rules and regulations, because you sometimes find a difficulty in complying with them; and where all you want is cleanliness, the rules and regulations should be such as to secure cleanliness without unnecessary restrictions.

2548. With regard to pasteurisation, do you not think that a creamery that does not submit its milk to this process is competing unfairly with another that does?—It is a matter for the creameries—it is a business matter. If one creamery thinks it encourages more customers by pasteurising the separated milk, it is wise to adopt that plan.

2549. Would you be guided by the opinion of scientists as to the effect of pasteurisation?—I agree that pasteurisation is desirable, and I consider that it ought to be made compulsory.

2550. That is exactly what I wanted to get. If certain societies are engaged in trade, and if the product of one is produced under more reasonable conditions than the other, and the absence of the expenditure necessary to secure the highest ideal from the hygienic point of view is left out in one case and practised in another, it would be unfair competition?—I agree with that. In the one case you have better made under very good conditions, and in the other case you have, perhaps, the reverse.

2551. All creamery butter is not produced under the same conditions?—That is so.

2552. Sir JAMES LAMONT.—Would you tell us what is the proportion of buttermilk and separated milk that is got from a given quantity of whole milk, say, ten gallons?—Take it in percentages. For instance, a creamery that is selling cream takes off the cream very thickly, and in that case they would give back 90 per cent. or over of separated milk. In the ordinary butter-making creamery, the quantity of separated milk varies from 80 to 85 per cent. In addition to the separated milk, it is the rule that about 5 per cent. of buttermilk is given back to the farmers, just in the same way as the separated milk.

2553. There is no regular sale of the buttermilk?—They sometimes sell it locally for pig-feeding. The buttermilk, of course, is simply the separated milk that is left in the cream, soured, and then washed out. At the home dairy they take off very thin cream; they leave a great deal of separated milk in it. At the creamery they take off thicker cream. The buttermilk from the ordinary creamery is, as a rule, more diluted than the ordinary home-made buttermilk, but it is the separated milk that takes the place of the old skim milk and buttermilk.

2554. Separated milk can be soured?—Yes. And if you add about 10 per cent. of water, and churn the milk, you get so much of buttermilk that it is possible to make a good butter.

2555. Have you any experience of chemical preservatives in milk at creameries?—A local chemist informed me that the sales of home-made and other preservatives for milk sent to creameries were greatly on the increase. It was about two years ago I was informed of that.

2556. Did he say what other chemicals were used?—No others. It is confined to benzoic acid, and some of the other potent compounds called milk preservatives, &c.

2557. This is rather objectionable?—Yes; and I do not think they ought to be permitted in the new milk.

2558. Mr. O'BRIEN.—Do you think they have a deleterious effect from the public health point of view?—They are objectionable.

2559. Sir JAMES LAMONT.—Does your Department give any premiums for winter dairying?—Have they considered that question?—Yes; there are two experiments in winter dairying. At two creameries the following experiment is being tried?—During the months of December, January, and February, a minimum of 5d. per gallon for milk of average quality is guaranteed by the Department, and 4d. during the month of March. They may be able to make that price themselves, but we guarantee that it will not be less than that. (See Department's Journal, Vol. 12, Part 2.)

2560. Mr. O'BRIEN.—That is for the whole milk?—No, for the better lot. In addition, for each gallon of milk supplied over what they produced last year, that is, for the increase, we guarantee them an extra penny. We offer a penny per gallon for the increase in the winter supply.

2561. How long has this been in force?—The experiment without the penny per gallon for the increased supply was carried out for three years at a creamery. With the addition of a penny it starts this winter. There was a slight increase in the milk supply at the first creamery, but the trouble we found was that there is a floating population amongst the cows, rendering it very difficult to determine whether there is any substantial change. The springers are sold in the autumn very often, and that goes against us. It also takes time for a man to alter his method of farming in order to feed winter cows; and I think the period was really too short to enable us to draw any definite conclusion.

2562. Someone has been talking about the encouragement of pure breeds and milk cows free from tuberculosis, and telling of premiums being given for such. Has nothing of that kind been done?—I cannot give you any information on that point; it would not come into my branch.

Mr. CAMPBELL.—Nothing has been done.

2563. Mr. WILSON.—Can you give us some reasons why it is that the creameries appear not to cater very largely for the whole milk trade in the cities. You suggest that the maximum price that the whole milk is worth at the creameries is about 6d. a gallon, and in towns you estimate it at about 1s. 2d.. Why do not the creameries cater for that particular trade?—I think some of them do. I know some send milk to Dublin and Belfast. They could cater more widely for it. The farmers want the separated milk back for feeding purposes. In some districts you could not get whole milk for export. In fact, I may say that when I suggested the export of milk to England at 8d. per gallon, free on rail, the farmers objected to sending their separated milk away even at that price. Of course, that objection is broken down; they wanted it at home to feed pigs, or cows, or something of that kind. I think that town dairy-men, if they selected a creamery that was well equipped and well managed could obtain from it supplies of good, clean milk, and have a regularity about their supplies that they have not now.

2564. In point of fact, in the immediate area around Dublin and Belfast the creamery system has not got on to any great extent?—No, because the milk supply goes into the towns.

2565. And would not the creamery system fit into the winter shortage that exists in the towns?—In England a great many of the farmers have combined to pool their milk and send it to the London market, and they are better able to deal with the milk trade in that way than by working individually.

2566. Your suggestion is that the future development of the city milk trade should proceed along grouped lines?—Yes; I think you could control it much better.

2567. Mr. O'BRIEN.—Could you tell the rates for carrying milk on railways?—There are some special rates for separated milk. The ordinary rates for milk are—Up to 30 miles, one halfpenny per gallon, from 31 to 50 miles, three-farthings; from 51 to 100 miles, one penny. Over 100 miles, are one and one-eighth of a penny. That is at farmer's risk, and between local stations only. It costs something like 2d. or 2½d. to send milk to London. Emptyes are returned free in all cases.

2566. I think that on the Great Southern and Western Railway they have special rates for country produce?—It is a rate-back from which I read.

2567. For the supply of Dublin the rate would be 1d. a gallon on an average?—I quite agree with you.

2570. Mr. WILSON.—When the milk comes into the creameries under existing conditions, is there any sediment test or any fermentation test?—There are several tests that some good managers apply, and in which we give instruction. There is the ordinary sediment test, where you take a pint or a quart of milk and place it in a sort of inverted bottle, to the bottom of which is connected a small tube which narrows to a graduated point. The dirt settles into this tube: the tube can be disconnected, and you can measure the amount of dirt in the milk. There are various fermentation tests as to whether the milk is good or bad.

2571. Are these tests in general use?—No. They are used by very few. There is also the acidity test. If there is high acidity you know the milk has not been taken care of. This is in more general use.

2572. In point of fact, there is not very much work of that kind being done?—No.

2573. You would like that system developed?—Yes. Of course, you could only have a system like that by educational methods.

2574. Is this test a thing that you could standardise?—There has been a rough standardisation adopted, but it is not made an absolute rule by anyone that I know of.

2575. Would you recommend it in the present state of knowledge?—I do not think there is sufficient known to warrant so laying down a standard of that kind.

2576. With regard to tuberculosis, we have had a great deal of evidence on the subject in connection with the milk trade, and one of the points that has been brought out very strongly is the great danger from the obviously and clinically tubercular animal. Is there any system in the creamery system by which a dangerous cow is eliminated?—None at all that I know of—none, except what power the local authorities have under the Dairies, Cowsheds, and Milk Sheds Order. From the creamery point of view, or from the Departmental, I don't know of any power at all.

2577. Then, in the event of the Commission considering it very desirable that the tubercular cow should be excluded altogether, would the creamery as such be capable of producing some machinery which would prevent viciated tubercular milk getting into the public supply?—If you pasteurise milk you prevent it.

2578. I mean to absolutely eliminate the tubercular cow?—The organization of the creamery might help you to carry out an examination of the cows.

2579. That brings me to the point—do you consider that the present system of pasteurising really has any great influence on tubercle bacilli at all?—Well, I have always been led to believe that it does, but I think it is a question you should ask a medical bacteriologist. It is certainly accepted by competent authorities in quite a number of countries that you can prevent the spread of tubercular disease to a great extent by pasteurising the milk.

2580. Is the bulk of the milk brought up to a tubercle killing temperature?—In pasteurising milk you may heat the milk to a comparatively low temperature for a long time, or to a very high temperature for a short time. In both cases, if the work is properly done, the tubercle bacillus is destroyed. The question you ask is not one on which I can give you any personal information. I have taken a close interest in the matter, but it is not part of my work to follow up that particular subject.

2581. You have suggested that there are certain districts where a shortage of milk occurs, and others in which it does not occur. Can you tell us the particular areas that ought to be examined?—Sligo, Roscommon, part of Longford, and part of Limerick. There seems to be something else at work in these districts than the drought. In some cases the milk supply to the local creameries has decreased for the past few years, and whether that is causing a shortage in the milk supply to the local people I don't know.

2582. That is the area that you suggest we ought to inquire into?—Yes, from what I may call the creamery

point of view. In the Counties of Limerick, Longford, part of Roscommon, and Sligo, there appears to be a decrease due to other causes than drought.

2583. I believe that recently the Irish Agricultural Organisation Society has been starting a method of controlling the provision of butter on voluntary lines. It is, I believe, in action, and they are trying to increase the quality of the butter in order to get a higher price for milk. The alternative, I gather, would be to give compulsory powers to, say, the Department of Agriculture, as suggested in your evidence, to prosecute people who send dirty milk?—There is a resolution of the Council of Agriculture and the recommendation of the Departmental Committee on the Irish Butter Industry, and resolutions of various bodies concerned with the industry, such as the resolution of the Irish Creameries Managers' Association, passed at a meeting held in Limerick, asking the Department to obtain power to prosecute anyone tendering dirty milk to creameries and condensing factories. There has been a noticeable attempt on the part of quite a number of the creameries to group together in order to refuse to receive dirty milk, but that has not been successful so far; at least, not in the districts where it was originally suggested, namely, in Limerick and Tipperary. At a largely attended meeting in Limerick to deal with the matter, I suggested the formation of milk-grading associations, and put forward a scheme. They expressed doubt as to its feasibility, and they passed resolutions similar to other resolutions which had been passed elsewhere, that the Government be asked to empower the Department to prosecute persons sending dirty milk to a creamery.

2584. Then I gather that even with these powers, there would be a large range from the minimum that was absolutely necessary to a very high quality?—I don't think there is that difference. If milk is clean you cannot have it cleaner. If the milk and the cans are clean, and the milk is free from infection, it is quite good enough for consumption. From that point of view, I don't think you can distinguish between clean milk, cleaner and cleanest milk. Of course, you may examine the milk bacteriologically, but the method is on trial, and the price of each milk has to be raised.

2585. Miss McNALL.—In America they grade the milk. There is certified milk and inspected milk and there is a third grade?—It is on its trial over there. In Copenhagen they rely on their own inspection, and they have one of the cleanest and best supplies in Europe. It is the same in Hamburg and also in Stockholm. It is done by limited liability companies, which undertake to supply clean milk from cows free from disease, and they receive a price not more than we are paying to-day.

2586. Mr. WILSON.—They have arrived at this ideal condition along voluntary lines?—It applies merely to the milk supply of a few particular companies. People prefer to buy from these large companies which are satisfied with a small profit on a large turnover and have good supervision.

2587. That has been along voluntary lines?—Yes; and it has been very successful.

2588. Is there any country that you know of where the compulsory lines have had the same results?—I cannot call to mind the compulsory power other countries have at present. It is not a question that I had thought over, and I cannot call to mind what has been done. I think there is something being done in America, some State legislation. I would refer to the Reports of the English Local Government Board on American methods for control and improvement of the milk supply, new series, No. 3, 1909. Also to Colonial regulations.

2589. There are two definite lines of possible action. One is by voluntary work and the other by compulsion?—Yes. If you enforce the present laws properly most of it will be done. That is, if you see that the places are clean, I am not speaking about the ventilation or the air space, but merely cleanliness. That is a great thing to be desired and secured.

2590. In regard to the churns and milk vessels?—There are some types of churns that, as I have said, are very unsuitable.

2591. Would you consider it a hardship that milk vessels for railway work should be standardised?—Not if you give time to get rid of the old vessels. The can

should be designed so that all parts can be reached with the hand, and that all portions of the interior should be visible; there should be no crevices, and the can should be dipped in tin in order that there may be no crevices for dirt. Dances on the top of the lids are a great nuisance, and I don't know what they were ever put on for, but they are one of the greatest sources of contamination.

2293. You would have no objection to some system of standardising and legislating certain patterns of churns, and forbidding others after a specified time?—I have no objection if you give time. I think that the brass strips on the inside of the tankards should be done away with, as they are soldered on, and milk gets behind, and they are a possible source of contamination. I may say that the instructions in visiting the creameries frequently strip these off.

2294. They are no use?—No. They are not used for measuring to any great extent.

2294. I think that you remarked earlier in your evidence that one of the difficulties of supplying the labouring man—the small man in the neighbourhood of a creamery—was the small size of the accounts and the trouble the farmer would have in collecting such small sums?—Yes. I am told that farmers object to being troubled with small accounts, but they will sell as much as you like if the pennies are brought up. The small accounts lead to friction.

2295. If it were possible in any particular area to organise a demand—some voluntary society or persons to arrange for a certain definite supply of milk, which a farmer would hand over in bulk, and for which he would be paid in bulk, and either the creamery or the voluntary society assisted in delivering that milk into the smaller houses, there would be no objection to that?—I should not think so.

2296. It is quite a simple matter to organise a system of delivery over a particular district, and that would get over the difficulty of the small accounts and the small debts?—Yes.

2297. Perhaps the question I am going to ask with regard to milk records should be addressed to another witness from the Department, as the matter may not come within the scope of your own particular work. What experience have you about the keeping of milk

records and the grading-up of the milk output?—We have twelve Associations keeping milk records at the present moment, with 103 members and 1,425 cows. Two of these have been running for two or three years; others have been running experimentally from eighteen months to a year, as the portion of Scheme 20 referring to co-ordinating associations was only inaugurated in 1910. Quite a number of others are about to start. The work of these Associations has been a revelation to many farmers, because they found that the pet cows which they thought gave them the most milk were often the worst of the herd, and that the cows which gave a smaller supply of milk for a longer period were better than the big milkers for a short period. They are very difficult associations to start.

2298. Once you get them introduced into a district you would expect them to spread?—Yes, especially as soon as we can get a number of the records of the different herds printed and distributed, together with the notes of the owner of the herd as to which he thought was the best cow originally. There is a tremendous difference between the yield of cows, ranging from 300 gallons to 1,000 gallons a year. I may mention that sometimes managers of creameries are slow to push Associations of this kind, as it may get them into trouble with their customers, owing to differences in tests. But these difficulties would not arise where the work is properly carried out at the creamery.

2299. You have an interesting Table* showing the number of cattle, milch cows, and heifers in Ireland in each of the years from 1900 to 1911, and the export of cattle from Ireland during the same period. Have you any reason to believe that during the period covered the average production per head of cows in Ireland has gone down?—I have no reason to believe that. There is no proof of it. Most men do not know at present what their cows are giving, and they did not know ten years ago. In 1886 or 1894, when I was at creamery work, we had a census taken of the cows, and we tried to make out what was the milk yield per cow, and it averaged 500 gallons for that particular district, delivered to the creamery. That was in the County Limerick, and there were some fine milkers there at that time. I know of men with purchased herds who are afraid to test their cows because they think they would show up badly.

*Table showing the total number of Cattle, Milch Cows, and Heifers in Calf in Ireland in each of the years 1900 to 1911, inclusive; also the Exports of Cattle from Ireland during the same period.

Year.	Total No. of Cattle. Col. 1.	Milch Cows, including Heifers in calf. Col. 2.	Heifers in calf. Col. 3.	Milch Cows, etc., percentage whole. Col. 4.	Total No. of cattle exported. Col. 5.	Milch Cows exported. Col. 6.	Springers exported. Col. 7.
1900	4,008,840	1,553,474	Not shown	31.6	745,135	Not shown	Not shown
1901	4,073,223	1,493,483	shown	31.7	642,047	shown	shown
1902	4,725,223	1,310,737	separately	31.6	560,282	separately	separately
1903	4,064,112	1,596,179	prior	33.1	528,238	prior	prior
1904	4,075,718	1,497,847	to	32.0	775,227	to	to
1905	4,644,315	1,457,954	1905,	32.0	719,934	1905,	1905,
1906	4,673,554	1,496,284		32.3	773,281		
1907	4,675,493	1,537,463		32.4	543,010		
1908	4,712,453	1,586,123	28.625	33.1	622,634	42,796	27,772
1909	4,699,554	1,546,924	34.839	33.6	573,555	41,443	26,247
1910	4,688,528	1,557,524	35.412	33.2	550,181	45,112	25,904
1911	4,711,720	1,565,438	35.873	33.2	Not	yet available.	

The figures for columns 1 and 2 for each County and Poor Law Union are available.

The figures in column 3 are included in those in column 2.

The figures in columns 6 and 7 are included in those in column 5.

Prior to 1900, these figures were collected by the Registrar-General for Ireland, and after that by the Department. The figures are obtained by the police.

The figures prior to 1900 are published in the Agricultural Statistics for Ireland, 1910 (Col. 2064).

The number of milch cows (including heifers in calf), while showing a considerable increase as compared with the period 1880-1900, being as low as 1,350,243 in 1894, is still below the figures of the recent years 1907-1909. In 1899 the number is given as 1,900,389.

Meanwhile the total number of cattle has increased, but the percentage of milch cows is considerably lower than in the earlier years. In 1893 the milch cows were 27.7 per cent. of the total cattle enumerated. The percentage gradually fell, till in 1900 it reached 31.6 per cent. Since then the percentage shows a tendency to rise. It will be further noticed that while the increase in the total number of cattle between 1900 and 1910 is 108,170, the increase in the number of milch cows and heifers in calf is 107,344.

2520. You give evidence as to the possibility of utilising the separated milk?—Yes.

2521. At the present time the real objection to increasing the use of separated milk would be the fact that for the greater part it is dirty?—I would not like to say that. You can get it from creameries where milk supply is above average. We have creameries under our supervision where none of the milk is delivered in a dirty condition, and it would be quite possible to obtain separated milk from places like that which would be above suspicion.

2522. That would be obtainable even at the present moment?—Yes. I may say that I have seen hundreds of gallons of separated milk wasted because there was no outlet for it. There you had an article held as valuable as milk running in the sewers.

2523. Sir JOHN LIVERMORE.—That is not going on now?—It is stopped. We found other outlets for it.

2524. Mr. CAMPBELL.—I don't know whether you are aware of the experiments carried on by the Department on the feeding of pigs on separated milk?—Speaking from memory, I think it was proved that the value of the separated milk might run as high as 2d. per gallon for pig feeding.

2525. We take it, that for pig feeding and calf feeding it is worth at least a penny a gallon?—Yes.

2526. Before separated milk could be delivered in Dublin, what would the price be?—4d. or 4½d. a gallon.

2527. Then, of course, the store trade in Ireland is a very valuable one, and it depends on milk-rearing?—Yes.

2528. So that there is a considerable demand and need for separated milk in the country?—Yes, and that need must be growing, because the export of store cattle is increasing.

2529. There are many districts where you cannot buy separated milk from the creamery?—Yes, that is so, in quantities.

2530. As a matter of fact, the farmers would not sell it in some cases?—That is so.

2531. Because they know it is a valuable food for their calves?—Yes.

2532. Do you know much about dried milk?—I have seen three or four plants at work, and I have examined about twenty tons of that milk.

2533. What is your opinion of it as a food?—None of it is completely soluble. It loses its solubility. I have some in the office ten years old, and it is absolutely insoluble. So long as it dries it keeps, but it does not retain its solubility. I tried samples at home, both as a beverage and in puddings, and could always easily detect it. The flavour was not good in many cases, and none of it was like milk.

2534. You don't regard it as anything like an equivalent of fresh milk?—No. One large firm in London, Appin and Barrett, cook a lot of puddings and waffles, and I thought they had a good opening for its use, but their plant is idle now. There are also three or four other plants in this country idle. The best dried milk was the Borden brand, and the second one was Swedish. In both of these the milk was condensed and dried in a vacuum. There are other brands made by the Just-Hotmaker process. I have some that was made in Cheshire, and I cannot get it wholly to dissolve. If you used chemicals you could make it all soluble, but there is a change that takes place in the constitution of the casing; where I found the dried milk wholly soluble I would look for these chemical salts that dissolve the casing.

2535. Sir JOHN LIVERMORE.—Is the treatment of the dried milk would not the enzymes be destroyed?—Yes.

2536. Mr. CAMPBELL.—To come back to the question of pasteurisation, you were a member of the Committee that sat on the butter industry, and it was stated in evidence before that Committee that the very finest butter in the world is produced in Ireland?—Yes.

2537. And that is not pasteurised?—I have seen it made from raw, unpasteurised milk.

2538. Let us take the butter of Ireland as a whole?—Taking it as a whole, pasteurised butter is superior.

2539. That is what is produced in Ireland?—Yes.

2540. That was not the evidence that was given be-

fore the Committee?—But I did not give evidence before the Committee.

2541. The evidence was that the finest butter that came from Ireland was summer butter unpasteurised. It was also given in evidence repeatedly that the Danish butter was inferior in flavour to that butter, but more constant in quality and better in texture?—That is so. Taken as a whole, if you put unpasteurised butter on one side and the pasteurised on the other, the pasteurised would be better. I won't say that there might not be better samples amongst the unpasteurised butter.

2542. That is the point?—They would be fuller flavoured.

2543. If you pasteurised your milk you would reduce the samples of the finest butter?—I don't think you would be the extent that would warrant you in not recommending pasteurisation.

2544. You were very emphatic in your evidence that you are in favour of all the milk being pasteurised. Many butter manufacturers are of opinion that if you do so you would sacrifice some of your finest butter?—You might to a small extent, but it would be better on the whole to pasteurise.

2545. Talking of the pasteurisation of milk, you could not pasteurise milk for cheese?—Not at high temperatures.

2546. Are the requirements of the Dairies and Cow-sheds Order having any effect on the supply of milk to creameries to your knowledge?—Personally, I cannot say.

2547. Have you heard any of the farmers complaining?—It was stated in two or three places that the creameries lost suppliers through the enforcement of the Order, and we sent circulars to our Inspectors, asking them to make inquiries. Out of 180 creameries situated in the districts where the Order was enforced only seven creameries lost customers, and the number of suppliers lost would not be ten per cent. of those supplying the seven creameries. In some cases we found that where those statements had been made there had been a good deal of dissatisfaction regarding the management of the creameries, and that the loss of suppliers had been going on prior to the Order being enforced. In fact, I think the Order was merely an excuse for leaving on the part of some members.

2548. Do you know whether it is fully enforced in the creamery districts?—I don't think so.

2549. And that a great deal remains to be done in that direction before you get your milk supply at the creamery to your satisfaction?—Decidedly.

2550. A Bill has been prepared for introduction to Parliament on the Butter Industry, and indirectly the question of milk is dealt with in it?—That is so.

2551. Are the Department seeking powers to prosecute persons bringing dirty milk to the creamery?—Yes.

2552. And you are in favour of that?—Yes.

2553. Referring to the Better Report, do you adhere to the statement in it that the Department should seek power, as far as necessary in the general interest of the dairy industry, to regulate all the conditions under which milk is produced and subsequently treated for the manufacture of milk and butter?—Yes.

2554. And that until such powers are obtained you will not be in a position to certify that the milk that is produced in the creamery is, in every case, such as the public health should demand?—Yes; I agree with that. Until you have some powers of that kind you cannot give any guarantee.

2555. Mr. O'BRIEN.—You said at the beginning of your evidence today that managers of creameries did not like to reject milk from suppliers, because the suppliers were often their members—members of the co-operative creamery?—That is quite a recognised thing.

2556. You have actually found that—the managers tell you so—that they dare not refuse the milk?—Yes. They also have a difficulty in some creameries in refusing milk where the competition in the district is keen, because the man whose milk is held up at one creamery sells it at the opposition creamery.

2557. Have the Department any system of registering creameries and stating if they come up to the

standard?—When an inspector visits a creamery he has to fill in a report of this kind. (Papers handed in.) He has to answer questions about the condition of everything. He has got to state whether everything is clean, tidy, and orderly, and that report is written out at the creamery there and then, so that whatever the Inspector writes can be discussed by the manager. We check that, a man might water down his report for one reason or other, but we always find that the Inspectors write full and complete reports as to the condition of the creamery at the time they visit it.

2638. He writes these reports on the spot?—Yes.

2639. Does he give a copy of his report to the manager, president, or owner of the creamery?—The book is actually kept in the creamery. There are three copies of the report made; one is sent to the Department, one is sent to the president or owner of the creamery, and one is left in the creamery, so that the manager sees it, the owner or president sees it, and the Department sees it.

2640. The idea is to facilitate the carrying out of the recommendations?—Yes; and the improvement of the condition of the premises or machinery in any way that it requires improvement, with the object of increasing the quality, and hence the price, of the finished article.

2641. Having got these reports, is there any kind of registration?—When a creamery is clean and orderly it is what is called "approved," and it is placed on the list. I have an "approved" list here.

2642. You have a system in the Department of surprise visits for better prices?—Surprise butter inspection. Only those on the approved list are entitled to compete.

2643. Being on the "approved" list is a very substantial benefit to a creamery?—It should be.

2644. The inducements you offer in this way ought to take, to some extent, the place of compulsory powers?—You will always find a number standing out. You know it is in connection with the Organisation Society, and we know it in connection with the creameries generally.

2645. The CHAIRMAN.—Is the number of approved societies increasing?—It is just about the same.

2646. Some fall off and others come on?—Yes. For instance, if they don't try to improve the milk supply or keep the premises clean and in order, we have to drop one or two.

2647. It is a mark of cleanliness and order to get on this list?—Yes.

2648. Prof. MEYER.—That is a certificate of approval?—Yes.

2649. Mr. O'HANNE.—The tankards in which the milk is sent down to the creameries are the same form of tankard that is sent on the railways?—In the case of the fifteen to twenty gallon tankards they would be practically the same shape, but the smaller ones that are often locally made, you cannot see the inside to examine them.

2650. On the whole, do you think the tankards used by the creameries and the factories are rightly shaped?—No.

2651. In spite of the recommendations and the money offering advertisements?—There is a good deal of room for improvement.

2652. Do you know of any tankard that is right?—There are several that would meet with absolute approval. There are several forms that make tankards that would be suitable. There should be no need to put dirty sugs, newspapers, or hay between the lids and the neck of the can.

2653. Would not your opinion be that not ten per cent. of the tankards sent on the trains have their lids properly secured?—I have examined them as a matter of curiosity. I have seen the milk trains coming into London, and I don't think there is that great percentage of bad lids.

2654. I am constantly travelling up a milk line, and I should say that a very large proportion of the tankards have the lids secured with straps and with newspapers and other things?—Yes.

2655. Would you not recommend that all the lids of the tankards, not only going by train, but going from

the supplier to the creamery, should be fastened with a seal?—It would cost you 17s. 6d. for a seal, and, besides, I don't think that it is necessary. If the lids are fastened down with some of the ordinary methods of fastening it seems to be perfectly accurate, as far as I can make out. We had no difficulty with lids.

2656. I am thinking of the contamination by the roadside. Some of the creamery carts go two or three miles, and are driven by irresponsible boys or girls, and there is no doubt at all that in any part of the country there is a good deal of tampering with milk—a pint taken out here and there, and water from a ditch added?—That may happen, but I don't think you would ever get a lid that a smart lad with inclinations of that kind could not get round.

2657. You don't think that it would be practicable to have them sealed?—No.

2658. You supply plans for creameries?—When we are asked for them. We have them printed, and they are sent down as guides to the local architect, with sketch plans setting that particular building or site.

2659. Do you supervise his drawings?—We may ask the Society to submit them to us, but we have no power to compel the societies or their architects to send them to us.

2660. In supplying these plans, or in sketching plans, do you arrange that on the receiving platform of the creamery there shall be a place for the sealing of the tankards before they are given back to the people?—That is done sometimes, just along the side, because it could not be done in front of the platform, as there would be too many vessels.

2661. It takes longer to time and send the cans down to empty them?—Yes.

2662. Binsing could be done on the platform?—It could be done by handing the vessel to a man.

2663. If you had the two men who are generally receiving the milk with a sealing pipe at hand, they would ensure that before they returned the tankard it was thoroughly cleaned. Is it not the practice in certain creameries that the can is given back to the boy; it is taken round the creamery, and there is a sealing pipe to seal the can if he likes?—In some cases that is done. It is not a question of room on the platform. If a manager wishes to have these cans rinsed and sealed it is easy to have it done. He could see it done from the platform, or get a man to see that it was done? I have recommended this for fifteen years, first under the Commissioners of Education and then under the Department.

2664. In most of the creameries, are the cream vats open at the top or covered?—All are open. They may put on a wooden cover occasionally.

2665. Is there anything to prevent dust and germs and flies falling into the cream?—As a rule, they are not covered. The cream-room, if it is a well-designed room and properly situated, would hardly be exposed to the dust and flies that you speak of. It should be away from the road, with a screen of trees between the road and the creamery.

2666. Most creameries are made in such a way that there is a procession of carts going around?—Yes.

2667. That road is not always very clean, and there is a liability that dust may get into the cream?—Of course, unless you absolutely cover the cream up and keep it from exposure it would be liable to get terrible dust into it sometimes, but it is quite an easy thing to cover the cream vats with a piece of muslin stretched on a lath frame. That is what I did myself.

2668. And that is what you recommend?—Yes.

2669. Is the plan do you arrange that these vats should be away from the windows, so that the dust and flies could not fall into the vats?—These are the directions we give —

"That there should be ample room, so that all tanks, machines, &c., may be placed clear of the walls and each other, that the splashing of milk or milky matter on the walls will be avoided, and that the steamers can approach the machines on all sides for clearing.

"That there should not be any wood in such a position, or as a support for a machine, where splashing will take place.

"That the floors are smooth and have sufficient fall. Iron stands should be used for supporting machines and tanks, concrete blocks should be avoided."

"That the creamery is well lighted and ventilated. But can this be seen: and the creamery will dry quickly."

"That the drains should have sufficient fall and be trapped outside."

"That any passage or place where milk is liable to be spilled should be concreted, or suitably paved and drained."

Provision is made in all the plans for the erection of pasteurising plant, and in the case of full creameries space is provided for the erection of a churning machine and cold store."

2670. The Department gives every assistance to the creamery by granted advice as to the most suitable form of business?—Yes. The creamery should be well lighted and ventilated, the drains have a good fall, and so on. If these rules are complied with, it would be impossible to build an insanitary creamery.

2671. Do you advise on the water supply?—We see not water drains. We recommend them to find the water before they build the creamery and how they should protect their well from surface contamination.

2672. On the whole, would you say that the creameries are careful about their water supply now?—There are a great many of the water supplies that want looking into. Our instructions on the subject, contained in Letter No. 93, are as follows:—

"The well should be sunk at such part of the grounds that all surface water will drain naturally from it."

It should be sunk to such a depth and should be of such diameter that the storage capacity, below the water level, shall equal the quantity of water required for the largest day's supply of milk likely to be required."

Whether the lining of the well be of brick or stone it should have a course every five feet laid in cement to act as a strengthening ring, and should be well puddled behind with nine inches of clay to a depth of at least fifteen feet, as shown in sketch below. The upper portion of the well should be finished off in concrete curved two feet above the ground level, and provided with a strong cover with manhole. A wide concrete ring should be built round the top and drains provided to carry away any surface water."

Sir RICHARD BARTON.

2666. I was asked yesterday whether the Department of Agriculture had done anything towards the propagation of goats in Ireland. I was not then aware of the active steps they are taking. There was a Com-

2673. Sir JOHN DUNNIGAN.—I see your Inspector reports specially on the water supply?—Yes. That report is as to whether he finds it protected from surface contamination. It would require a chemical and bacteriological examination to discover in some cases whether the water is polluted.

2674. Dr. MOONSHAN.—With regard to your experience of condensing factories, do they use skim milk?—I have never been personally employed in a condensing factory, but I have been in them. It is mostly condensed separated milk that is manufactured in Ireland.

2675. Mr. O'BRIEN.—And it is labelled as such?—Yes, as far as I have seen.

2676. Do they add any ingredients?—Cane sugar, unless they were condensing sour milk; then they have to add some chemicals.

2677. I see that the Department is contemplating a Bill to enable them to prosecute parties tendering dirty milk to the creameries?—Yes.

2678. Would you think it advisable to add milk shops?—We are dealing with the manufacturing side. I don't think it would be desirable to draw the Department into the public health side of the work. I would like to point out on the map how the creameries are distributed throughout the country. About half the number are in the Northern third of Ireland and about half are in the Southern third. There is a great belt across the country from Louth to Mayo and from Wicklow to Galway where there are no creameries or butter factories. Father Barry, of Oldcastle, gave evidence here yesterday, and his own creamery is about ten to fifteen miles away. I don't know that the map is interesting in any way, except as showing the great central belt where there are no creameries. The creameries are in the North and the South.

2679. Mr. CAMPBELL.—It is, perhaps, interesting to know that in Cork the hand separator is used?—Yes. There is this point about hand separators; when you take the heavy depression, interest, and cost of running and all other expenses into account, it is questionable as to how far they should be recommended. The question has not been thoroughly thrashed out as to cost. The prices received for their produce are generally low, compared to creamery prices.

The CHAIRMAN.—Thank you for your interesting evidence.

Mr. J. B. DUNLOP, M.R.C.V.S., examined.

2681. The CHAIRMAN.—You are a qualified veterinary surgeon?—Yes; it is nearly 53 years since I got my diploma. I have had a good deal of practice, in Belfast in particular. I was the first veterinary surgeon in the North of Ireland as Inspector under the Contagious Diseases of Animals Act. I have always paid particular attention to the prevention and spread of disease, and for that reason I would like to say a few words to the Commission. I would like to read what I have written down.

2682. Certainly.—It is believed that the house-fly is the main cause of disseminating summer diseases in children by contaminating milk, etc. It would appear that the house-fly is a means of distributing typhoid. Typhoid is more prevalent among the cavalry and artillery than the infantry. The common breeding place of the fly is the horse manure pit. The fly lays approximately 60 eggs at a time. I cannot say how often. The egg is laid on the surface. It soon becomes a maggot, disappears, and continually burrows in quest of food. In the chrysalis or shell stage it is seldom recognised. When the house-fly emerges from the shell the wings are not apparent; however, the wings soon open out, and it becomes darker in colour and is able to fly in a few hours. I have used a tar preparation at a place for a number of years, and the houses in the neighbourhood are much cleaner, not to mention the diminution in the number of other unsavoursome

ferences last evening under the presidency of Her Excellency, and the Department promised to do everything they could in the matter.

parasites. I have no doubt the house-fly conveys typhoid from horses. A little sprinkling occasionally of crude petroleum or kerosene benumbs the house-fly completely. Dead excreta is frequently found on one of the hind quarters of a cow. It should not be rubbed off, as that would cause a dirt which would contaminate everything about the dairy, and so spread disease. Instead, the dried excreta should be well maintained and suffused with some liquid disinfectant, and then scraped off. The following disinfectant might be used with advantage, as it is both cheap and effective.—Half a pound of soda ash (washing soda), one ounce of fresh lime, and a gallon of water. Where there is any danger of infectious material drying and forming dust, I should advise that the place be sprinkled with a solution of commercial calcium chloride, which would keep the air pure; it costs very little. No one should be allowed to tend milk cows who does not keep his or her hands perfectly clean. I once saw a man milking, and the manure was dried and hardened on the backs of his hands. I have on some occasions seen the hands of people milking not above suspicion, although in the great majority of cases the hands of the milkers were kept clean. Unless the hands are washed regularly the operation is apt to be forgotten at milking time. A convenient method of keeping the hands clean would be to keep a cleansing solution, such as the one previously referred to, in a locker; the

hands to be dipped in the solution, well rubbed together, and washed in clean water. The hands can be more thoroughly and quickly cleaned in this way than by using soap. Any person with a scratch or festering sore on the hands should certainly not be allowed to handle milk. Absolute perfection would be for the milkers to wear the surgeon's rubber gloves. The easiest way to ascertain whether milk has been cleanly handled or not is to let it sit for a short time in a vessel and then decant it. Milkers should be chosen from a respectable class, and should be licensed. I would suggest that more girls be employed in the dairy and more women be appointed to act under a qualified veterinary inspector. Every dairymaid and maid should wear an overall and also be supplied with a pocket handkerchief. Each one should be instructed to use the handkerchief over the mouth when coughing as a result of a cold or influenza. The overalls and handkerchiefs to be treated with a solution of glycerine of salicin and zinc chloride. This procedure if carried out, would prevent any infection being conveyed from the dairymaid or maid to the milk or to other individuals. A suitable calico handkerchief would cost about one-halfpenny. We must not harass the struggling dairymaid. Milk is an indispensable article of diet for the workingman. The average dairymaid is as clean as any other class of the community. Certainly no person should be allowed to touch milk who does not carry a handkerchief in his pocket, and why not have the little refinement of a treated handkerchief, which would cost so little. I trust the dairymaid will have the honour of lending other classes the essence of good manners—that is, not to cough near another person's face without holding a handkerchief, politely tucked, over their own mouth. Frictions between each two cows (the Scottish system) is recommended by the Department. There could also be small frictions between the head of each pair of cows. In many dairies there is no division at all between the cows' heads. It is impossible to think of cows in a dairy coughing over each other's food. This is a breach of the elementary and fundamental laws of hygiene and sanitation. There could be no more speedy and effective way of spreading disease than this. Infectious material passes in this way directly into the lungs of the healthy cows, or is swallowed with their food. When a cow is sick and refuses her food, the trough should be cleaned out, and the attendant should wash his hands before touching any feeding stuff or handling milk. Each cow should have her own drinking vessel exclusively for her use. The drinking vessel should be numbered and considered a fixture. A small bucket for each pair would not cost much. I distrust many people will say that these ideas are not practical. I know they are practical. Excepting the little refinement, they have been put to the practical test nearly thirty years ago. If now put into practice the dairy-keeper would be the gainer, and the health and lives of children would be saved. I am not a bacteriologist, but I have got information from some of them, and I am a practical man. There are a number of subjects I could have spoken about—ventilation and food. I have condensed my remarks as shortly as possible.

1985. You suggest that it is possible that contamination may come to the milk from the food of the cow producing the milk. What particular form of food do you allude to as a likely agent?—Any form of food—turnips, hay, meadow of any kind. Any kind of food on which the cow is fed; there is a certain amount of risk even on the grass and drinking water outside.

1984. I thought you wished to direct our attention to certain foods which are more liable than others to lead to this contamination?—That is another matter. I have always observed that when food is badly

saved, infectious disease comes, either among horses or cows, and the disease spreads rapidly. I have seen people feeding animals on badly saved hay, and the cows and horses got into a weakened condition. When cows are fed on badly saved food, the quality or flavour of the milk is poor. In Ireland, particularly in the West, it is very difficult to save grain and hay, and I think it would be well if the Department would pay particular attention to that matter, and teach the people on the subject. I know it is very difficult. They require extra attention at that point to preserve the grain properly. I remember being consulted with regard to horses in the Railway Company in Belfast; they were doing very badly, and the manager asked me why it was. I found the place was wet, in consequence of the horses suffering from diabetes, so-called. I examined the hay and found it all right. I examined the oats, and they looked beautiful, and I found that they came from Russia. I tested them and found that they were badly saved. The manager said he did not like to throw out the oats, and it would not be right to sell them, and so they continued to use them. But the horses got worse, and at last he gave up the oats. The manager took such a horror of oats that he refused to buy any more afterwards, but used barley and Canadian peas and something of that kind. The horses were never in such a condition afterwards. It is very difficult to save grain in wet weather, and I think there should be some new method of saving. I used to keep a number of hunting horses, and we always got credit for turning them out very fresh and in good condition. I was always very particular about the oats they ate. I did not mind about the appearance so much, but if I found the slightest bitterness I always rejected the oats. I am doing the same thing now, and we have not had a death among the few horses that I have charge of for some years. That is largely owing to the man in charge, but it is particularly owing to the fact that he is most careful in selecting the oats and the hay.

1985. I see that you have views on the question of the application of the Widal test to those who are in charge of cows and coming into contact with milk. Do you think it is an unreasonable proposition to ask those who come in contact with milk to subject themselves to this test?—I think it would be either unreasonable and expensive, although so far as the operation is concerned, it is a very simple one. It has to be very carefully done. Suppose we had typhoid in the neighbourhood and the milk suspected, I think in that case the Widal test should be applied. I think also that no dairymaid or maid should be appointed or licensed without inquiry into their history to see if they had had typhoid, and where anyone has had typhoid the Widal test should be applied. Of course, comparatively few people have had typhoid, but there might be inquiries made, and if there was any suspicion I think the Widal test would be advisable. Although the operation is a very simple one, people might be a little alarmed.

1984. The CHAIRMAN.—I would like it to be understood that it is by no means decided to limit the number of witnesses to those who have already had an intimation from the Commission. Letters have appeared in the newspapers expressing surprise that certain witnesses were not so far represented in this inquiry. I wish it to be clearly understood that the Commission has no desire to shut out from their purview any evidence that can be in any degree helpful to them in arriving at a solution of the questions they have been appointed to inquire into. When any interest is affected an opportunity will be given to those concerned to present the question from every conceivable point of view.

The Commission then adjourned until the 26th January, 1912.

NINTH DAY.—FRIDAY, 5TH JANUARY 1912.

The Commissioners met at No 5, Upper Castle Yard, Dublin.

Present:—P. J. O'NEILL, Esq. (Chairman); LADY EVERARD; MRS MARGARET McNEILL; SIR STEWART WOODHOUSE, M.D.; ALEC. WILSON, Esq.; DERMOD O'BRIEN, Esq.; J. R. CAMPBELL, Esq., B.Sc.; PROFESSOR A. E. MITTAM, B.Sc., M.R.C.V.S.

S. W. STRANGE, Esq., Secretary.

2007. The CHAIRMAN.—I am extremely sorry that I am obliged to open the proceedings to-day with a very unpleasant announcement. I have received a letter from Sir John Lestage resigning his position as a member of this Commission. He writes as follows, under date 31st December, 1911:—

DEAR MR. CHAIRMAN,

With very great regret I beg to resign my seat on your Commission. I do so with extreme reluctance, as no one recognises more fully the great value and importance of the work on which you are engaged, but I find that my professional engagements render it absolutely impossible for me to continue to serve on the Commission with any degree of efficiency, and therefore I feel compelled to retire.

With many thanks for your invariable kindness and consideration,

Believe me,

Yours faithfully,

JOHN LESTAGE.

MR. FREDERICK P. FAWCETT examined.

2008. The CHAIRMAN.—You are Clerk to the Rathmines Urban District Council?—Yes, since 1888.

2009. You have held that position for a considerable period?—For nearly twenty-four years.

2010. And the duties of the position, no doubt, familiarise you with the steps taken by your Council to ensure a pure and cleanly milk supply for the inhabitants of your district?—Yes; it is one of my principal duties.

2011. Would you be good enough to say what steps have been taken by the Rathmines Urban Council with that object?—Well, in 1893, I first wrote a report on the condition of the dairy yards in the township, and got a committee of three appointed, consisting of Dr. Browne, who will give evidence here, and two other members of the Council. We went round the dairy yards, and found them in anything but an enviable state; so much so, that we came to the conclusion that every effort that the law would allow should be made to improve the condition of affairs, but we were faced with the question of registration. We commenced at the wrong end. We had to register, whether the premises of the dairymen were suitable or not, and the only remedy we had was afterwards to prosecute the people for keeping cattle in unsuitable premises. We were always met in Court with the objection, "You have already registered the premises."

2012. It is in some degree apparently discouraged your complaint against the individuals?—Quite so. We were preparing an Omnibus Bill in 1896, and we introduced a clause into it giving us power to license, on condition that the premises before licensing should be certified by the Medical Officer of Health as being in every way suitable for the purpose; and we also sought power to withhold the license until the premises were certified. By that clause it was proposed to substitute the granting of licenses instead of registration. The magistrates were to have power to caution the offender in the first instance, endorse the license on the sealed conviction, in addition to a fine, and to cancel the license on a third offence. We are of that opinion still, notwithstanding that in the recent Dairies and Cowsheds Order made by the Local Government Board there is a power of having a place inspected before registration. We are strongly in favour of licensing. We also think that

I make this announcement with very great regret indeed, a regret which I feel satisfied is shared by my colleagues around this table. It is a very distinct loss to the Commission that a gentleman of Sir John Lestage's experience and high professional attainments has severed his connection with it. It is some consolation to his colleagues to know that his place has been filled by another medical gentleman of considerable experience, who will, I have no doubt, be of enormous help and assistance to his colleagues on the Commission. Sir John Lestage manifested a very lively and intelligent interest in the work of the Commission; and I feel satisfied that it was pressure of professional work which he could not overcome, that compelled him to sever his connection with us. I can only again express my deep regret that he has been obliged to retire from the Commission.

LADY EVERARD.—He was a most valuable colleague to us all.

grazing land let for dairy cows ought to be subject to license, particularly in regard to the water supply. I have reason to believe that, during the past summer particularly, the deficiency of the water supply has been very great; and we have known of some cases where cattle have been allowed to depend on supplies little better than sewers. If they have no other supply with which to wash the udders and the milkers' hands, this must be a great source of danger to the public.

2013. Would you be good enough to tell the Commission what officers have been appointed by your Council for the purpose of carrying out the provisions of the Dairies and Cowsheds Order?—We have got three male sanitary inspectors, who have got sanitary certificates. Then we have got a lady inspector, who gives her time more to milk shops and looking after the cleanliness of milk vessels. We are able to say that there has been a vast improvement in our township. We will not say that everything is model and up-to-date, because that would mean incurring an enormous amount of expense. Our Veterinary Inspector, Mr. Lambert, will tell you that the condition of things in Rathmines is as good, if not better, than in other places in Ireland. The cleanliness of the cows is a particular object we have in view. Our men go in at different hours to see if the attendants' hands and the surroundings are satisfactory.

2014. Have many prosecutions been instituted in your district for breaches of the provisions laid down under this Order?—We have them constantly. We do not consider that the fines are sufficient. I think Miss Hayes, our lady inspector, will give you an instance where, after five convictions for adulteration, a fine of only £10 was imposed. We consider that the publication of such convictions is essential.

2015. That does not always follow?—No. I do not blame the papers for it, but very frequently most important cases have not been reported.

2016. Would you believe that the most drastic punishment to people who infringe this Order would be the publication of their convictions?—Yes; I am strongly of that opinion. They dread publication more than any fine. We have had a person fined up to £100 for adulteration; and the Recorder, who gives us every assistance, confirmed that fine; but I do not

think that a fine of £100 is held as much a deterrent to the defendant as the publication of the conviction would be. We need to send out these convictions at our Council meetings, but for some reason the Press did not publish them.

2697. Convictions are always read out at your Council meetings?—Yes.

2698. But they do not always find their way into the Press?—No.

2699. You do not profess to know the reason?—No, but there was a case decided in England where a Railway Company got a conviction, and it was held that the publication was an additional penalty to what the Court inflicted. My opinion is that the Court should order the publication at the expense of the defendant. In France, the defendants are made to put up a notice of their convictions in their windows.

2700. You believe that would safeguard the Press from any consequences that might arise from the publication of these particular cases?—Most certainly.

2701. As to the condition in which the cows are kept, and the cleanliness of the attendants, have prosecutions been instituted on account of lapses in this respect?—Yes.

2702. And what penalty has been enforced?—From 5/- to £1.

2703. Do you believe that is insufficient?—Wholly insufficient. And even for the cleanliness of the vendors, in two or three prosecutions fines of 5/- have been imposed, and we have to pay 10/- to our solicitor for appearing.

2704. Of course the Council have no desire to be indemnified for their own expenses, but they do think they ought to meet with co-operation in the effort they are making to secure the carrying out of the Order for the guidance and control of the trade?—Certainly.

2705. Are the cows inspected by your veterinary inspector ever examined for the presence of tuberculosis or maladies which may infect the milk?—Certainly. Every cow is inspected once a month. We are very strong on the point of inspection. We do not think the law in that respect is at all satisfactory. At present, as you know as Chairman of the County Council, there is a veterinary inspection with reference to pleuropneumonia, scab, and some fever. The most important is left out—the inspection with reference to tuberculosis in cows. I have always argued that there should be an inspection by a competent inspector of cows bought and sold in the several markets and fairs throughout Leicestershire, that every cow purchased should be examined before being allowed in with other cows in the herd, and that every dairy keeper should give the local authority notice of the introduction of a fresh cow into his yard, in order that the authority may send their veterinary inspector to see it. Our veterinary inspectors will give you some interesting results of his inspection.

2706. Has your veterinary inspector ever gone the length of ordering the slaughter of a beast?—No, he has not. I may explain one case we had, a very serious case, not very many years ago. There was a prize herd of cattle in the neighbourhood, and a gentleman first bought one cow, and the cow became ill, and Mr. Lambert, our veterinary inspector, tested it. The cow reacted to the test, and was killed. The owner did not ask for compensation. He bought another from the same herd, and the same thing happened. Shortly after, the whole herd was being disposed of by auction, and the Chairman of our Public Health Department and the veterinary inspector and myself waited on the Local Government Board, to try to prevent the dispersion of this herd. The Local Government Board stated that they had no power in the matter, and that the question of slaughter would not apply to any beast, except the seller was affected. We can hardly believe that if the animal itself is tuberculous that the milk will not be tuberculous.

2707. In this particular instance to which you refer, was the milk sold to the public from this herd?—Some of it was.

2708. Your Council, in order to give proof of the fault that was in them, would have been quite prepared to incur the expense consequent on having that herd slaughtered, if they had power to do so?—They would.

2709. That shows certainly, I think, the desire they had to carry out to the fullest extent every power con-

ferred on them for the purpose of safeguarding the public?—My Council has always been most anxious. They would not stop at any expense to try and get a pure milk supply. Everything that the law allows them to do they have done, and the dairymen in Leicestershire have very loyally stood by us when their attention was drawn to the regulations, and the prosecutions we have had for adulteration are for milk produced outside our own district. We had a curious letter from a man who was fined five times; he said, "I have given up supplying milk in Leicestershire."

2710. He found that the milk of his particular kind was not appreciated in Leicestershire?—Yes.

2711. Do you insist on your Inspector observing whether or not the personal habits of those who draw the milk from the cows are cleanly, and whether provision is made for the washing of their hands, and the keeping of the vessels in a cleanly condition?—We have had prosecutions for not complying with such a regulation, and we insist on milk exposed for sale being covered.

2712. Your lady inspector, you told us, devoted her time and energy to the inspection of the shops wherein the milk is exposed for sale?—Certainly.

2713. Have you had any difficulty in inducing the shopkeepers to conform with the regulations laid down?—Not on the whole. Some of them do not like new-fangled things. There is one point with which I would like to deal—the question of exposure. Our officers have been so active that now, in many shops, the vendors will not expose the milk at all. They will keep it in a room or press. Our lady inspector has stood outside a shop and seen children go in with a jug and come out with milk in it, and when she went into the shop afterwards she was told they had no milk. I have a very strong opinion on that matter of exposure. I should say that any milk or food kept on licensed premises should be considered for the purpose of inspection as exposed. As far as food is concerned, margarine might be kept under the counter and handed out to a customer, and our inspectors have no power to insist on having a sample, because the article is not exposed to view. In this way, vendors can defeat our best efforts.

2714. Mr. O'BRYEN.—You mean that if I were to go into a shop and ask for a pound of the best margarine, the vendor might hand the out from under the counter margarine?—Yes.

2715. And your Inspector has no power to go behind the counter?—None whatever. We have had numbers of prosecutions for refusal to sell. We have tested the question of exposure.

2716. The CHAIRMAN.—You have never instituted a prosecution to determine whether the fact of milk having been sold after your Inspector had been informed there was none for sale, would not make the vendor liable to prosecution?—No, we had not that individual case.

2717. I would be very curious to know what the decision would be, because it is a means whereby the intentions of the Dairies and Condensed Order would be defeated?—I am afraid our solicitor would not take such a case as that.

2718. This Commission is inquiring into the conditions in which milk is sold, and obviously it would be a matter of importance to discover whether or not the Order could be evaded in the way you indicate?—Yes, no doubt. In connection with the refunds to give samples to our Inspectors, there is a point I should like to bring before you, namely, that we find now that the people, rather than pay the high fines imposed for adulteration, have found it cheaper to refuse samples, because the highest fine for refusal is £10. We would like the limit removed. I have a case pending where the man drove off in his cart and would not supply the Food Inspector. The man was fined before.

2719. You can only prosecute him for refusal to sell to your Inspector?—Yes, and the highest penalty is only £10, whereas for adulteration there is no limit.

2720. You made an allusion some time ago to the fact that you believed that it was necessary, when the cows went to grass in the summer, that there should be power to inspect them at grass, with regard to their condition and with regard to the condition of the water supply?—Yes. There is, of course, power for the Rural District Council to do it. We have found that the Rural District Council work with as very well. Before we register any purveyor we have a farm that we send out to the District Council, saying that so and so has applied to us and asking them for a report.

2721. Do you find that the South Dublin and Rathdown District Councils have been of assistance to you?—Yes, they have been most helpful and loyal in that respect. Of course, we know nothing of their system of inspection in their own districts.

2722. You act on the official document you receive from them?—Yes. In cases of infectious disease we communicate with the outlying districts, asking them to get the medical officer of health to visit the families of the stock owners, and they do so.

2723. Mr. O'BRIEN.—That is in the Co. Dublin?—Yes.

2724. Do you get milk coming by train?—Yes.

2725. And you have no control over it at all?—No. There is very little milk delivered by train in our township. There might be a little delivered at Milltown Station.

2726. The CHAIRMAN.—Have you ever traced an outbreak of infectious disease to the milk supply?—No, we have not.

2727. That shows it must be closely watched and looked after?—Yes.

2728. Your experience in that respect is most happy?—We have no cases.

2729. How far do you think your efforts to secure a pure and cleanly supply of milk for the inhabitants of your district are restricted by want of additional powers? You have already suggested that you think housing would be of enormous value?—Of enormous advantage.

2730. What other suggestions do you make in addition to that one; I mean, for the extension and amplification of the Dairies and Cowsheds Order?—The question of exposure is a very serious one.

2731. You have indicated that, and that the fines for refusal to sell to your officers should be increased?—Yes. Another point is this, that apparently we have no legal right to go into the kitchens where the vendor may keep the milk. According to the Order, milk must not be kept in a kitchen or living room, but we can only enter the shops.

2732. Though the shop may in itself be clean, the milk that is sold from the shop may be stored in unhealthy conditions?—Yes. I should say that any licensed premises should be open for inspection.

2733. The store, as well as the shop?—Yes.

2734. Is your Council in favour of having the administration of the Dairies and Cowsheds Order entrusted to some Central Authority?—Yes.

2735. Do you think it could be more efficiently carried out if the control was vested in some authority outside local influence?—Yes. We passed a resolution at our Council to that effect, and sent it to the different Councils throughout Ireland. We passed the following resolution:—

"That the Royal Commission as to the spread of Tuberculosis having found that the disease is spread by means of infected milk, the District Council of Rathmines and Rathgar would earnestly press on the Government the necessity of placing the control of this important article of food under a State Department, the existing system of registration being a failure, particularly in country districts, where there is practically no supervision. That a copy of this Resolution be forwarded to the Chief Secretary, the Local Government Board, and all the Urban District Councils."

That was in 1907, before the recent Order was made. We cannot shut our eyes to the fact that in many districts they have refused to appoint inspectors.

2736. The point you wish to make is this, that no matter how diligent your Council may be in the discharge of its duty, in enforcing the provisions of the Dairies and Cowsheds Order, if milk is sent from a district where the Order is not enforced at all, or only loosely enforced, you are the victims of maladministration in other districts?—Yes.

2737. And in order to obviate that, you would suggest that all the Local Authorities ought to be controlled by some Central Authority, which would insist on all the provisions being enforced?—Yes, and we go further. The Inspectors of the Department of Agriculture take samples of food, as well as our inspectors, and we think that is a duplication.

2738. And the work would be more economically done if controlled from one centre?—Yes.

2739. Sir STEWART WOODHOUSE.—Have you any authority, apart from the goodwill of the neighbouring Rural Authorities, to examine the sources of supply outside your own district?—No. We have no authority except by the permission of the Local Government Board.

2740. So that practically your powers are limited to the analysis of milk?—Yes.

2741. Mr. WINDON.—Then with regard to that same point, you have no power and you are limited by the goodwill of your neighbours. Do you find that you have that goodwill, and that you can inspect outside your own area?—We have never tried. We applied to the Local Government Board, but they declined to give us authority.

2742. And quite apart from having authority, you do not inspect in point of fact?—No.

2743. Have you any system of bacteriological examination for tuberculosis in the milk?—Yes, we send samples to the bacteriologist.

2744. And what is the percentage of samples showing tuberculosis?—Perhaps Dr. Browne may be able to give you that information.

2745. I may also ask him about the number of suspected cases of tuberculosis amongst cattle?—Yes, or Mr. Lambert.

2746. Your area is mainly urban?—Yes.

2747. And not much grass land is it?—None at all.

2748. Your cows would leave your control for the six months in summer whilst they are in grass?—Yes.

2749. Can you follow them?—No; once they are outside our area we are done with them.

2750. Would you be of opinion that there is less milk sold to-day than ten years ago—is there a decrease in the quantity of milk sold?—I think it has largely increased. Of course, the number of dairy yards in the district has been very seriously reduced—by nearly one-half.

2751. In number?—Yes.

2752. And in cows?—Yes.

2753. That is counterbalanced by more milk coming from the country?—Yes.

2754. Have you any reason to suppose that the Rural Authorities in your neighbourhood really do look after your cows when they go out from you?—I believe they do. I cannot say definitely, one way or another.

2755. Would your opinion agree with that of Sir Charles Cameron, that the city milk supply is better than that which comes from the country?—Yes.

2756. I am told that in certain other places they have a by-law dealing with dairy shops, which would be a very useful one over here. Under that regulation no connection at all is allowed between the dairy shop and the dwelling house; the dairy shop is a water-tight compartment?—I would be very strongly in favour of that.

2757. Obviously it could not be applied to every dairy shop at once?—No.

2758. But it could in the re-construction or re-building of premises?—Yes.

2759. There would be a difficulty in going into a man's private room?—Yes, but where there is such an important matter as pure milk concerned, I would not let any feeling interfere with the discharge of my duty. I am against dairy yards in urban districts or cities at all.

2760. Why is that, seeing that your evidence is that the milk produced in cities is of a better quality than that produced in the country?—No; my point is with regard to tuberculosis. Cows that are kept in one place in a certain atmosphere, very seldom get more than 75 to 90 degrees in the winter. They are let out in April, when the temperature often goes down to 40 degrees, and it is only natural that the cattle may contract lung diseases. I am speaking of years gone by, when I was at home in my father's place, when cows were let out every day, summer and winter, for a certain time. Cows should have at least three or four hours daily in the open air in the winter months. I would make an exception in the case of cattle fattened for slaughter; but where cattle have to be let out early in April they run a very serious risk of contracting tuberculosis or other diseases.

2761. Then it has been suggested that in the system of inspection there should be a county veterinary inspector in charge of the local inspectors appointed by

the Rural District Council, and so forth?—I am afraid that would be a multiplication of officials. My contention is that the inspectors should be appointed independently of these bodies, and of local influence in any way. I do not suggest that you want more superior inspection.

2762. The system which you advocate is a distinctly different system from that which recommends a county officer?—Yes; I would not advocate that.

2763. Prof. MERRIAM.—You say in your proofs of evidence, "At present I understand there is a veterinary inspection with reference to pleuro-pneumonia, scab and swine fever; why not extend the inspection to tuberculosis?" I presume from that, that you would recommend that tuberculosis should be scheduled?—Certainly.

2764. And therefore, as regards the application of the tuberculin test, it is your General's wish that that test should be got rid of; would you prefer that an animal that reacts to the tuberculin test, whether it has got older disease or not, should be got rid of?—I should say so, but Mr. Lambert and Dr. Browne will be better able to give you an opinion on that matter.

2765. As regards the exposure of milk or food in a shop, would you prefer that any place that is licensed should be subject to total inspection?—Certainly.

2766. And if it were exposed, not in the sense of being exhibited, it should be examined, or well as any food that might be hidden from view?—Yes.

2767. The food that was hidden from view might be exposed for sale, but not exhibited?—Yes.

2768. You have no means of examining the condition of the milk that you get from the country?—None whatever.

2769. Do you know if samples of this milk are taken at all by any of your officers?—They take them in the ordinary way as the milk is being delivered from house to house.

2770. The inspection is not made at the station?—We have only one station in the district, Milltown, and there is very little milk coming in there.

2771. It comes in via the city?—Yes.

2772. And have you reason to suspect that the milk is adulterated when you take samples?—Whether we suspect it or not, we take samples.

2773. And you send these for bacteriological examination?—Some of them, as the Medical Officer thinks necessary.

2774. Mr. O'BRIEN.—You were saying that you inspected every cow once a month; how many inspectors have you?—We have only one veterinary inspector.

2775. And how many cows are there, roughly, in your district?—About 530 or 550 in our Urban district.

2776. And are they inspected by one man?—Yes, by Mr. Lambert.

2777. Can he manage to inspect that number?—Oh, easily.

2778. I see in your proofs that you recommend there should be no dairy yards in urban districts?—Yes.

2779. Would not that make it very much more difficult to inspect the dairy yards? You have only one inspector at present, and even if you had two inspectors, if they had to go outside it would be much more difficult to keep the yards inspected. Is your idea that dairy yards and dairy herds should be kept outside the town, but just on the limits of it, so that the animals would get fresh air and pasture, and at the same time be sufficiently near the city, so as not to add any great expense to the carriage of the milk?—Yes.

2780. Unless you had them centralized in some particular district it would make them much more difficult to inspect?—The difficulty ought not to be taken into account, if it would be advantageous.

2781. Mr. WILSON.—You would like to have power to go and look after those outside farms, from which your milk supply comes?—Yes.

2782. Mr. O'BRIEN.—At the present time you have no such power?—No.

2783. Miss McNEILL.—With regard to the French requirement of having notions of conviction exposed

in the window of the vendor, one witness stated that he did not think that such an arrangement would be tolerated in this country?—Of course, it is very drastic; I know it is done in France, but I don't know if it is done in any other country.

2784. With regard to some other means of doing the same thing, and having regard to your approval of licensing milk vendors, would you have convictions endorsed upon the licenses?—Yes, and I would have the license withdrawn on the third conviction.

2785. Regardless of the gravity of the offence?—Of course, it would be altogether in the hands of the magistrates.

2786. I think you stated in your proofs of evidence that you recommended that notification should be given to the Local Authorities on new cows being added to the herd?—Yes.

2787. Do you think that possible?—Yes.

2788. With regard to the control of the supply from outside districts, your idea is that grazing land should be licensed?—Yes; the main point would be the water supply.

2789. Have you in your investigations any means of finding out how the vessels are cleaned when the cows are out in grass?—No; except of course in our own district. When the milk comes in we examine the cans in which it is brought.

2790. Would you suggest that when the cows are out on grass there should also be facilities for luring the vessels secured?—Certainly.

2791. Have you any means of knowing whether dairy workers are living in contact with, say, a case of infectious disease?—Of course, there is a very heavy penalty for a case of that kind.

2792. Has that case arisen?—Yes. When a notification of disease comes in, we find where the milk is supplied from, and if it is outside our own district, we communicate with the Officer of Health in that district, and he most courteously goes and inspects the place.

2793. A case came to my knowledge where a child had measles, and also another case later, which were not notified, and in both of those cases the father had an occupation which would lead to the easy transmission of the disease to other people?—The patients should have been removed to hospital and the place disinfected.

2794. Another point that is essential is with regard to typhoid carriers. Do you think that sanitary steps ought to be taken to secure that the dairy workers are not typhoid carriers?—Certainly.

2795. Would you advocate that dairy workers who are suffering from an inflammatory sore throat should be kept away from contact with the milk?—Yes; in any suspicious case at all.

2796. Do you make any suggestion as to how to avoid overlapping with the Department of Agriculture with regard to the inspection of milk?—Only the one main point, and that is that there should be the one system for the whole.

2797. The CHAIRMAN.—What proportion of the milk sold in your district is raised in it?—I could scarcely tell you that, I am afraid.

2798. A considerable quantity is brought in?—Yes. We have about one hundred and ten or one hundred and twenty registered outside purveyors.

2799. Who have no dairies in the district?—Yes.

2800. That would exceed the number who have got dairy yards?—Yes. We have only got about twenty-six yards.

2801. Prof. MERRIAM.—What is the population of your district?—38,000.

2802. The CHAIRMAN.—You suggested in your proofs of evidence that before being bought, animals should be inspected and a certificate given?—Yes.

2803. How far do you suggest that inspection should go. Would it include the application of the tuberculin test?—I would go as far as that.

2804. And if the animal reacted to the test, you believe that the local authority should have the power to forbid that animal being used as a supplier of milk in your district?—Certainly.

2805. Mr. WILSON.—Regardless of expense?—Yes.
 2806. As far as I have been able to estimate, it would approximately double the cost of milk—I don't know.
 2807. The CHAIRMAN.—The question of cost in Mr. Fawcett's district would not deter in the same way

as in other districts. You could effect to adopt more drastic and extensive methods in Bathmans, Mr. Fawcett, than might be possible in districts less favourably circumstanced, where there is a poor element?—We have a poor element in one district.

Dr. ROBERT SAMPSON examined.

2808. The CHAIRMAN.—You are medical officer of health in the Bathmans and Bathgar Urban Districts?—Yes.
 2809. How long have you held that position?—Twelve or fourteen years—from 1898, I think it was.

2810. Do you subscribe to the generally received theory that in order to safeguard the health of the inhabitants, it is essential that milk should be produced in a healthy and clean condition?—Yes, I am very strongly of that opinion.

2811. And you also believe that if these conditions are not observed, that milk might possibly become a source of serious infection to the inhabitants of the district?—I do.

2812. We have had from the Town Clerk a history of the means adopted for the purpose of ensuring the purity of the milk supply to your district. Can you tell us whether samples of milk have been supplied for bacteriological examination?—There have been.

2813. Can you tell us what proportion have been certified as being infected with tubercle?—I don't think we have had a single case. The results have been negative, so far as I remember.

2814. With regard to tuberculous?—Yes. The results have been negative. Certainly, there was no positive sign of the tubercle bacilli in any case.

2815. Prof. MERTON.—Do you know what kind of examination was made?—They developed coliforms.

2816. You do not know if the milk was inoculated into the animals?—No.

2817. The CHAIRMAN.—Are you in favour of pasteurising or sterilising milk for the purpose of ensuring its cleanliness?—If it could not be helped, it is right to do so, but my idea is that if you get pure milk in its natural state you get it in its most nutritive form. Pasteurising and sterilising do not improve the milk. I am positive of that. I think that is the generally received opinion.

2818. And you would be in favour of ensuring the cleanliness of the milk supply by other means than by sterilising or pasteurising?—That is my idea.

2819. Have you any knowledge as to whether or not milk is used in your district for children as largely as you believe it should be?—I think it is, as far as I know. I think they take a lot of milk. I have no reason to believe that they do not.

2820. You have no appointment under the Medical Charities Act?—No, I have not much experience now as to the conditions under which the children of the poor are brought up. That would come under the notice of the Dispensary Officer, but he has made no complaint to me.

2821. Do you entertain the view that it would be desirable that the dairy stock should be inspected when they are on grass, as well as when they are confined in the owners' yards?—Yes, that is a most important point. When the stock leave our district in summer and go on grass, no one has any control over them, and during this present dry season I have got hints that the dairymen wash their hands in the nearest ditch where there is the least drop of water, and naturally that ought to contaminate the milk supply. We have no power to examine the cows on grass.

2822. Do you think it essential that that power should be conferred on the local authority?—Yes.

2823. To enable them to investigate the conditions under which the cows are kept when on grass outside their own area?—Yes; I think it is important that they should be inspected in the summer as well as in the winter.

2824. Do you think that impure water given to the cows is a source of danger?—That is a debatable point. There are a good many people who think that cows may take what they like, but my opinion is that there

should be a pure water supply for the cows for drinking and for cleaning the vessels. If the cows drink an impure supply, the vessels will in all probability be washed in the same water.

2825. Do you believe that cows found to be affected with tuberculosis of the udder should be slaughtered and compensation paid to the owner by the local authorities?—Yes.

2826. And you do not believe that the public have any right to complain of the burden this would impose, when undertaken for their protection?—I don't think they ought.

2827. We have been informed that a considerable quantity of the milk consumed in your district comes from an area outside your own?—It does.

2828. And have no reports been made to you with regard to the condition in which the milk is supplied?—We get reports sometimes from our own officers.

2829. And have they reason to complain?—We have not discovered very much reason. The officers take samples of milk and get it examined.

2830. That, I take it, is with a view to discover adulteration?—Yes.

2831. I am speaking now more on the question of cleanliness and the condition of the vessels in which the milk is conveyed?—We know that in many cases the vessels are not as clean as they ought to be. Miss Hayes will be able to give you more evidence on that point.

2832. The Town Clerk has conveyed to the Commission that in his opinion it would be desirable to extend the powers conferred on local authorities to enable them to inspect the stores or other buildings in which the milk is kept previous to its being sold. Are you of opinion that that should be done?—Yes, I am, decidedly. In fact, I may say that I have had an opportunity of reading over and consulting with Mr. Fawcett about his evidence, and I agree with everything he has said.

2833. Do you think it would be conducive to the general health of the cow, and consequently to the conditions under which the milk is produced, if the cows were allowed to go out on pasture for a certain time every day?—I believe so; and it would give an opportunity of cleansing their stalls properly, which it is very hard to do at present.

2834. That would rather restrict the number who keep dairies within your district?—It would.

2835. You would not consider that a matter for regret?—I would like to see all the dairy yards altogether outside the district. I think they should be kept in the country. There are some places in which the dairy yards are so surrounded by buildings that there cannot be proper ventilation, no matter how cleanly they may keep to the by-laws.

2836. It has been conveyed to the Commission that the milk produced in cities and urban districts is superior to that brought in from the country. Have you indicated any comparisons for the purpose of enabling you to form any opinion on that subject?—The milk in our district is better than what comes in, as a general rule. The reason for that, I think, would be that we can better inspect the premises.

2837. Have you been able to trace infection to the milk supply?—No.

2838. Would you be in favour of suspending a supply of milk from a source that is suspected?—I would, of course.

2839. That power does not exist at the present moment?—No.

2840. And you think it would be a safeguard to the public health if such a power were conferred on local authorities?—I do.

2841. Do you believe that it would also facilitate the administration of local authorities, and render them

more efficient, if the power to license was also conferred on them?—Yes, that is my opinion. You must register every dairy. We have no control. If there was a licensing system there would be a certain amount of control and the licence could be withdrawn.

2842. And you would insist that certain provisions in respect of light, air and ventilation should be made with regard to keeping all cows before a licence would be issued?—Decidedly.

2843. Lady Eversham.—What is your opinion of separated milk?—It is very poor. The only experience I have is that it might be fit for feeding pigs, but it is not fit for children.

2844. Is it your opinion that sterilising milk destroys some of its valuable properties?—Yes, but it is better to get it sterilised than impure.

2845. Have you any experience of this new powder milk?—No. I don't think it takes the place of fresh milk, but it is very useful when travelling.

2846. One of the witnesses suggested it would be very useful in places where milk might be easily contaminated?—Decidedly so.

2847. Suppose that at any time you know that a cow has a tuberculous udder, have you power in your district to prevent that cow being removed out of the district?—No. A case happened in our district where two or three cows were infected. The cows were sold by auction and distributed all over the country. We wrote to the Local Government Board and informed them of the case, and they stated they could not interfere.

2848. Was it a case of tuberculosis of the udder?—There was no tuberculous of the udder in this case.

2849. If a cow has tuberculous of the udder, have you power to isolate that cow and prevent it being sold?—I don't think we have. Mr. Lambert finds the dairymen very amenable in our district. Of course, when a case of infectious disease is reported, we send a sanitary sub-officer to make inquiries. We have printed forms that we send to the District Councils and County Councils stating, "A case of _____ having been noticed in this district, it has been ascertained that the milk is supplied by _____ in your district. Will you kindly have inquiry made through your Medical Officer of Health if there is any illness at present, or has been at a recent date, amongst the members of the family or employees of said dairy proprietor, and oblige."

Mr. R. H. LAMBERT, M.B.C.V.S., examined.

2850. The CHAIRMAN.—You have recently been appointed Veterinary Inspector in the Bathmire District?—Yes.

2851. Following the lamented death of your father?—Yes.

2852. And previous to taking up the duties of Veterinary Inspector yourself, you had the advantage of assisting your father for a considerable time?—I had.

2853. Do you find, speaking generally, that cowkeepers in the Bathmire district are willing to co-operate with the local authority in ensuring that the milk supply of the district is kept clean and healthy?—They are.

2854. Do you make a regular inspection of the cows in the district?—Yes, every month.

2855. Is that inspection to see if they are kept in sanitary condition, or do you make an examination for the purpose of ascertaining what state of health they are in?—I examine these udders every month, and make an examination to see whether they are in health.

2856. Have you found any animal suffering from tuberculosis of the udder?—No. I found a lot of suspected cases, and got the milk analysed, but I have not been able to confirm my suspicions.

2857. Is the suspected animal allowed to remain in the herd until it is determined whether it is suffering from tuberculosis or not?—It is isolated.

2858. What becomes of the milk?—It is not sold.

2859. Do you think that that is legally earned out on the part of the dairykeepers in your district?—I do not think it is. As far as the inspectors can do so,

2860. The CHAIRMAN.—Will you please substitute "District Councils" for "County Councils," because the County Council has no responsibility?—Yes.

2861. Sir STEWART WOODHOUSE.—Have you ever known a case of tuberculosis in a human being that you had reason to believe was conveyed by drinking the milk of a tuberculous cow?—No.

2862. Prof. MERRIM.—About compensation, it was suggested that cattle suffering from the tubercle should be killed, and the question of compensation then materially arises. Do you think this compensation should be paid by the local authority?—I cannot give an opinion at all.

2863. Supposing you had power to go outside your district, and you found a tuberculous cow and killed her, do you think that the people of Bathmire should pay for that, or should it be paid for by the State?—The State, of course; Bathmire should pay for nothing. I am afraid I cannot give you a definite opinion on that point, but I would like to see the cow killed.

2864. Would you like to go outside your own district and inspect the cows in the district from which the milk supply has been drawn?—Yes.

2865. Have you any goats in your district?—Very few.

2866. Miss McNAMARA.—You speak of sterilising and pasteurising improving the milk?—Yes.

2867. What injury do you think it does?—I think it precipitates a great deal of curd.

2868. What do you think the effect of that would be?—I think it would be injurious to the child.

2869. Do you make that statement as the result of personal observation?—No, but I don't think there is the same amount of nourishment in the pasteurised as in the raw milk.

2870. Would you be surprised to know that Dr. Rothschil, of Dresden, as a result of eleven years' experiments, found no difference in the nutrition of children fed on raw milk and those fed on pasteurised milk?—I am not aware of this.

2871. Prof. MERRIM.—You would aim at getting a milk supply that did not require to be pasteurised or sterilised at all?—Yes.

2872. And it is generally recognised in the medical profession that pasteurising and sterilising alter the nutritive quality of the milk to some extent?—Yes.

2873. Miss McNAMARA.—Dr. Rothschil's experiments are a matter of direct observation of the children fed on pasteurised milk, as against the other theory that pasteurising is injurious?—I don't think it is a theory.

they watch them, but could never catch them using the milk. Of course, it is very difficult to watch them always.

2874. It is practically impossible to do that. At all events, you impose on them the condition of withholding from public sale the milk produced by these animals for a probationary period?—Yes.

2875. And you have never been able to get certificates which warranted you in calling upon your Council to order the destruction of a beast?—No; I have tested two animals, and they were sent to the test. I reported the matter to the Department of Agriculture, and their answer was that as it was not a case of tuberculosis of the udder, they could not interfere, and the animals were left free.

2876. Do you find many other maladies and diseases located in the udders of cows besides tuberculosis?—There are mastitis, abscesses, milk boils, cow teats, and fibrous thickenings, but it is now rare to find one of these objectionable cases.

2877. What is done in these cases?—The animals are also put aside until the milk is tested. Where the cows were affected the owners were told to get rid of them, and they always did get rid of them.

2878. That was a case of distributing the mischief into some other district?—Yes.

2879. Do you think that is an economically sound theory to follow?—No; but we have no option.

2880. I am not finding fault with your administration; I wanted to know your opinion on the matter. Do you think it would be in the interest of the Central Authority, the State, for example, to encourage the disinfection of disease by that means?—No.

2282. And do you think that animals affected in the way you describe ought to be put into some sort of hospital for treatment and kept there until they are certified as sound and healthy?—Yes.

2283. At all events, you believe that they should not be sent to disseminate disease in other districts when they have been turned out of your own?—No.

2284. Have you had an opportunity of watching the condition of the milkers and those who were engaged in the care of the cows as to their cleanliness?—Yes. I go round when they are milking and look at their hands. On this score I think we have no reason to complain.

2285. You have very satisfactory results from the fact that they know they are liable to inspection and prosecution if they violate the conditions laid down in the Dairies and Cowsheds Order?—Yes.

2286. And have the owners of dairies been diligent in their desire to assist you in carrying out the provisions of the Order?—Yes.

2287. I take it that you have not much to do with the milk shops or the place where the milk is sold?—No; Miss Hayes respects those.

2288. And I see you suggest that where there are suspicious symptoms, such as watting and coughing, the veterinary inspector should be empowered to apply the tuberculin test?—Yes.

2289. And you suggest that animals that react under this test should be slaughtered?—Yes, certainly.

2290. You think that they are a possible source of infection and mischief?—I do.

2291. Would you condemn all animals that react to the tuberculin test?—I would.

2292. You think it is unwise to use milk from any animal that would react?—I do not think that it is unwise to use the milk, but they may infect the other animals by coughing over the food.

2293. That would be a most drastic and most expensive remedy to enforce—to slaughter all the animals that reacted to the test?—It would. There would be very few that would react. That is my expectation up to the present.

2294. Have you ever subjected a whole herd to the tuberculin test and ascertained what number would react?—There were only five in the herd I examined; it was a private gentleman's herd. One of them reacted, it was a perfectly healthy-looking animal too; it had to be slaughtered, and it had tuberculosis in the lung.

2295. Not tuberculosis of the udder, but tuberculous lesions were found in the carcass?—In the lung.

2296. We had another instance brought under our observation in which a fairly large herd was subjected to the test, and almost fifty per cent reacted, although it was regarded as an extremely healthy herd. You have never had an unfortunate experience of that kind?—No.

2297. Are you of opinion that cowkeepers should be licensed rather than registered?—Yes.

2298. What other suggestions have you to make that would increase the efficiency of local inspection, and secure the production of milk under better conditions than those that exist?—I do not know of anything except licensing, and to see that they get a proper class of men as owners.

2299. You are dealing now with the owner in the first instance?—Yes.

2300. And you think that men of good character and standing should be the men on whom the licence should be conferred?—Yes.

2301. You would not confer licences indiscriminately?—No.

2302. You would like to exercise some discretion as to the personal character of the person that would be licensed?—Yes.

2303. You think that notwithstanding his assertions that he would carry out the regulations laid down, in the case of some cow owners there would be a great difficulty in getting them to do so?—Yes.

2304. Do you think it desirable that powers should be given to inspect the house and surroundings of people connected with the milk trade?—I do.

2305. I take it you believe that if these people were in contact with infectious disease that they should be suspended from their work?—Yes, for some time.

2306. Do you think that the water supply for animals in summer time, when they are on grass, is a matter of importance?—I should think it a matter of great importance, especially this last summer.

2307. Do you think it desirable that local authorities should have the power to go into the districts where the animals are being pastured for the purpose of inspecting as to whether or not the water supply was adequate and pure?—I do.

2308. Lady Eversham.—Suppose you find in your district an animal with a tuberculous udder, what do you do to prevent that animal spreading the disease?—I would serve notice to have it isolated, and report it to the Local Government Board.

2309. Not to your District Council?—I would report it to them too.

2310. Who would give the order to have the animal slaughtered?—The Local Government Board.

2311. How long after your report to them would that order be given?—It might be a week.

2312. We have it in evidence that when you discover an animal in the herd badly infected, you had no power to keep that animal under supervision until it is slaughtered, and that the animal could be sold. The witness said, "We never find the cow there when we go back again?"—I have no trouble of that kind. If they get compensation they could not hesitate.

2313. Do you think that the legal compensation allowed is sufficient?—Yes.

2314. For a good cow?—If you take an average. A cow that would be ornamented would not be worth more than £10.

2315. Is it your opinion that if the limit of compensation were raised, the people would not be so inclined to hide or get rid of their cows?—Yes.

2316. The Chairman.—Supposing the owner of a cow had bought it a week or two before in the market, and paid £20 for it, and bought the animal in the belief that it was perfectly sound and healthy, but was so unfortunate to discover that it had tuberculosis of the udder, would you hesitate in ordering the slaughter of the cow?—I would not, but I would feel that it was very hard luck on the owner of the cow in this instance.

2317. Would you not think that it would be difficult for this portion of the Dairies and Cowsheds Order if a discretion was left to an officer occupying your position to determine the compensation to be paid in each case?—I would, certainly.

2318. I put that question to Mr. Watson, Veterinary Inspector of the Dublin Corporation, and that was also his view. One naturally hesitates to make an order which inflicts a financial loss on an individual who has himself not been responsible for, or guilty of, a criminal or negligent act?—Yes.

2319. Lady Eversham.—The cows are out in summer on grass. In that case have any power to inspect them?—No.

2320. Do you think it desirable that you should have the power to follow them?—Yes. I think it is desirable that they should be inspected in the summer as well as in the winter.

2321. As a matter of fact, do you know whether the cows are inspected or not when they are on grass?—I do not think they are.

2322. Do you submit that the bull that does not pass the test might transmit tuberculosis, and that that would be a danger?—Yes.

2323. Mr. Wainwright.—Do you know how many cows there are in your area?—There were 826 last month.

2324. Among those, you know of no suspicious cases of tuberculosis at the present moment?—No.

2325. These were no recognizably tuberculous cows in your district?—No. It is very much better than it was twelve months or two years ago. There used to be a tremendous number of cows in the district with fibrous thickenings.

2326. You have no reason to suppose that the people in your district hide their cows away from inspection in outlying lands?—No, I do not think it would be possible for the owners to hide them.

2327. I want to go a little further into this case quoted by Mr. Pawcock. He states in his summary of evidence that "a cow purchased by a resident in this township was found to be suffering from tuberculosis." Was that a clinical test?—The cow reacted, though apparently healthy.

2997. That was not confirmed by the milk examination?—No. They said that the milk was of a poor quality, and that no bacilli were discovered.

2998. The second cow also re-tested to the same test?—Yes.

2999. Was she slaughtered?—No. In regard to the first cow, the owners' suspicions were aroused by the quality of the milk. I suggested that he should test it, and he did so. He had only had the cow for a fortnight and he got it slaughtered. We found lesions in the lung. The same man went to the same herd to get a second cow, and would not purchase without the tuberculin test being applied.

3000. That cow re-tested and went back into the herd?—Yes.

3001. Then a week or so afterwards the whole herd was advertised for sale?—Yes.

3002. The suggestion offered was that the herd was tuberculous—was not that what you intended to suggest—the whole twenty-six cows?—No.

3003. Why did you want to prevent the sale of the herd?—To prevent the cow that was tested being bought by some private owner as a milking cow. She re-tested very badly to the test.

3004. By re-testing very badly to the test, would not that suggest that there was very little wrong with her?—Prof. MERRIAM.—That sometimes occurs.

Witness.—She had exactly the same reaction as the one we destroyed.

3005. Mr. WILSON.—Was the carcass of the animal that showed tuberculous lesions in the lung fit for food?—I do not think so.

3006. There was no evidence of tuberculosis in this herd, except in the case of the two animals that re-tested?—That is so.

3007. From the little I know of the subject in my own area, there is not a herd in the country to which exactly the same thing would not apply. I do not know of any herd where the probability would not be that a fair proportion of the cows would re-test?—The whole thing was to prevent that second cow being sold.

3008. It is interesting to know why you wished to prevent the sale of a herd of which only two cows re-tested, because there are many thousands of cows of the same kind in Ireland?—We just wished to see if anything could be done. The Local Government Board, when we approached them on the matter, said they could do nothing.

3009. I am very glad to have this matter closed up, because the impression left on my mind was that this herd was clinically tuberculous, and that you had no power in the matter.

3010. Prof. MERRIAM.—As regards the reaction to the tuberculin test, you may get a re-action in an animal only slightly affected with tuberculosis, and the reaction evidenced by any animal is not indicative of the amount of tuberculosis present?—No.

3011. I take it that it is not every cow that re-tested that you would condemn to slaughter?—No, unless I had some suspicion before that there was something wrong.

3012. In other words, that there would be a certain amount of clinical tuberculosis as evidence?—Yes.

3013. When an animal is affected clinically, it is possible that it is suffering from what is known as open tuberculosis?—Yes.

3014. That is to say, it is disseminating the virus of tuberculosis?—Yes.

3015. And you think it would be well to get rid of that animal?—Yes.

3016. And is what you mean to, that you should have power to get rid of an animal that is clinically tuberculous, after you have shown by the application of the tuberculin test that it is affected?—Yes.

3017. And is the maximum compensation allowed?—Yes.

3018. You say you think that cattle sufficient?—Yes, in an animal that is clinically tuberculous.

3019. I take it you are of opinion that an animal that is tuberculous is an animal that is in a very poor condition, as a rule?—Yes.

3020. Do you believe that an animal might have tuberculosis of the other organs besides the udder and still give tuberculous milk?—No, I do not.

3021. Is it possible that an animal may have tuberculosis of the udder, and the lesion not be evident, even on careful clinical examination?—Yes.

3022. And is it possible that an animal may have tuberculosis of the udder and only occasionally give tuberculous milk?—Yes.

3023. If the milk of an animal suspected of giving tuberculous milk is to be thoroughly examined, several samples should be taken?—Yes.

3024. And they should be examined bacteriologically?—Yes.

3025. By animal experiment?—They should be, but they are not.

3026. Animal experiment is the only true means of identifying tuberculosis?—Yes.

3027. Mr. WILSON.—I wish to ask one question. You have different samples of the milk examined?—Yes.

3028. But not by the method of the inoculation of guinea pigs?—No. There is only a certain sum allowed, and they could not do the examination by the animal process.

Prof. MERRIAM.—That minimises the value of the experiment altogether.

3029. Mr. O'BRIEN.—You say in your summary of evidence that you used to find a lot of dirty-handed milkers?—Some time ago, yes.

3030. Was it that they had no idea of cleanliness, or was it because they had no facilities for cleanliness?—I think it was because they had no idea.

3031. Generally speaking, are the milkers given proper facilities for keeping their hands and clothes clean?—Yes.

3032. Do the milkers in your district wear overalls?—No.

3033. Just their ordinary clothes?—Yes.

3034. Do you not think that their ordinary clothes get rather dirty and greasy?—Yes.

3035. And are rather apt to lead to the possibility of dirt getting into the milk?—Yes; I do think they should wear overalls.

3036. Do you find the milkers milking dry-handed?—I have.

3037. Do they occasionally milk dry-handed?—Yes.

3038. That is very rare?—It is.

3039. Do you think they do it as well that way?—I do not think there is much difference. The majority of them damp their hands.

3040. Do you think that the practice of damping the hand—milking a little into the hand, or worse still, putting their hand into the pail, is one of the chief sources of dirty milk?—Yes.

3041. Do you think it would be possible to insist on the milkers milking dry-handed?—I do not think it would be possible to watch them. They might do it if you were watching them.

3042. Do you think it is always more difficult to milk dry-handed?—Yes.

3043. In certain places in Lancashire, the farmers have insisted on it and have gone with a stick to the men who did not do it?—Of course, they only want to be educated up to it.

3044. Some people here have been of opinion that you could not do it dry-handed?—It would take more time, and it would be more difficult.

3045. Prof. MERRIAM.—What was exactly in your mind when you wrote this paragraph in your paper of evidence: "I hold that no person should be allowed to keep a bull at stud unless he possesses a certificate that the animal has passed the tuberculin test. Unless this be done, it is practically useless to try to stamp out tuberculosis in cattle"?—I thought that in a case where several of the offspring of a certain bull were affected that the cows had produced tuberculous calves.

3046. You do not think tuberculosis is hereditary?—I think so.

3047. Mr. WILSON.—The calves turned out tuberculous?—Not exactly, but they contracted it. I have seen in a particular place within the last five months, where four calves up to six months old had tuberculosis.

3048. Prof. MERRIAM.—But the infection may have occurred after birth?—Yes, but it is rather possible that they should all be from one bull.

3049. Not if all were exposed to the same infection?—There were several calves that were exposed to the same infection and they were not infected.

Miss Hovoria M. Hays examined.

2980. The CHAIRMAN.—You are, I understand, a Sanitary Sub-Officer in the Bathrooms and Baltham Urban District?—Yes.

2981. And part of your duty is to inspect shops wherein milk is sold?—That is principally my duty.

2982. Do you find that the condition under which milk is generally sold fairly satisfactory?—I do. I have been appointed more than ten years to this position, and when I was appointed there were about forty dairies in the district. There are a similar number now, but they have decreased in one way and increased in another. By that I mean that about one-fourth of the forty dairies that then existed have discontinued to sell milk because they would not comply with the By-laws, and they have been replaced, not in the same premises, but in various other places throughout the district, by nearly a dozen more, who are willing to comply with the law.

2983. Are these vendors who produce the milk themselves, or are they people who sell milk that is brought in from the outside?—A great many of them sell the milk that they buy from another source.

2984. Do you think they are at all anxious to evade the inspection which you feel bound to give in order to ascertain the conditions in which the milk is kept?—At first they were not. When I went over these dairies first the people had a certain idea of cleanliness, but not as regards details. Milk vessels were washed without due attention to the proper cleansing of the cavities, resulting in the lodgment of the milk therein, and later producing vermin. I had also great difficulty regarding the closing of the interior of brass taps attached to milk churns. In the majority of cases the customer was to simply allow water to flow through, for the purpose of cleansing, and when I suggested the taps should be unscrewed, in order to cleanse the cavities, I was informed that by doing so the tap would afterwards leak. Often I turned the churns up so that I could examine the tap, and the result was that vermin was discovered. I, however, got over that difficulty by degrees, and now, not only are all the taps unscrewed and thoroughly cleansed daily, but they are constantly boiled. The inspections are made on an average once a week, and never on the same day of the week, so that the people may not know on what day to expect me. I should say the first thing I paid particular attention to was the covering of the milk. In some vessels I have in the summer season counted up to fifty flies in the milk. The people not being accustomed to keep their milk covered, used to forget to put on the canvas. This summer I only found one fly in the milk. I discovered that in some of the dairies I could not always find the same number of cases. They began to diminish in number, and afterwards when I discovered some of these cases in other dairy shops where they had retailed milk to ordinary purchasers they were in a dirty state. In one of the cases I gave a caution, and afterwards I took a prosecution and the man was fined.

2985. That had a salutary effect?—Yes. One day I took exception to a churn that was in a shop—it came from an outlying district, the next day I saw another churn, which was clean, and I was told that that churn was for Miss Hays' inspection. In the case of ordinary purchasers with no dairy yard attached I inspect the drainage of the premises, and when that is set right a great deal is done. I inspect about 200 vessels in the day, and carefully examine all the screws and cavities connected therewith. Of course, the people do not like the cavities to be examined, they consider it too particular. They are, however, extremely civil and polite to me. In places where there is no dairy attached a suitable store is erected in the yard to keep vessels and milk. I have to deal with dairy boys, and although I show them many faults I get the greatest politeness, even after a prosecution. About the cans chipping, our powers are rather limited. The people, if they have a vessel dirty and unfit for inspection, can leave it in another apartment in the house, and I have no power to enter that apartment, and if I had I would be told the vessel was not used for milk, that it was for water for themselves.

2986. You do think it would be desirable that powers should be conferred on the local authority to enable their officer to inspect any portion of the house in

which the milk is stored?—Yes. There was a very good suggestion offered here to-day, that of having the dairy independent of the house altogether, because it would be a very difficult thing for people to go out of the shop and go to the back of the premises to give milk.

2987. Mr. Wilson.—You would be very much in favour of sealing up all the dairy premises?—Yes.

2988. The CHAIRMAN.—It would be a very drastic remedy, no doubt?—Yes. The present state of affairs is very inconvenient. Supposing I had the power to examine the whole house and I want to procure a sample of milk, and suppose I found a churn of milk in a kitchen or parlour, there is the difficulty that it is not exposed for sale, according to the Food and Drugs Act.

2989. The suggestion, I take it, is this, that where premises are licensed for the sale of a certain article, it should be considered that whatever quantity of that article is stored in the place was part and parcel of the article in commerce?—Quite so, whether it is exposed or not.

2990. Because it is quite obvious that adulteration would arise and means be adopted to defeat the ends for which the Rules would be made?—Yes. When the milk is brought in churns from the country, where perhaps the supervision is not very strict—when the milk comes in very early in the morning by the trains, and is emptied into a clean churn, I have no chance of examining the can in which the milk was brought. I have here a specimen of foreign bodies strained out of a sample of buttermilk sent up from the country to a person in town, who retails it to a person in Bathmans; the buttermilk contained 50 per cent. of added water, in addition to the 35 per cent. allowed by law. In order to try and get the men out of the trouble if he were not guilty, I wanted to see if a second engagement from the same source would be adulterated. I found in the second case that the milk when it reached the vendor was adulterated with 41 per cent. of added water in addition to the 35 per cent. allowed. I brought a sample of the stainings of the milk to Sir Charles Cameron and his report was—"Weights 31 grains; composed chiefly of cow hair; but contains minute quantities of vegetable matter; dung; a few fragments of flies and myriads of micro-organisms." I took the sample from the strained milk. (The sample was exhibited to the Commission.)

2991. Is buttermilk largely vendible in Bathmans?—Not very largely. Sometimes for part of the year new milk is very scarce, and it pays the vendors better to buy buttermilk for their customers. Buttermilk is used in bakeries.

2992. You have no supervision over buttermilk that would be used for bakeries?—I have, but not legally. I am over the workshops as well, and I go into the bakeries and examine the milk. I get the people to cover it to protect it from contamination. I consider brass indicators in the interior of churns should not be allowed. Where the churns contain new milk it is hot enough, but in the case of buttermilk they are simply poisonous. When churns of this kind are used to contain buttermilk for sale in dairies I tell the people to thoroughly cleanse the indicator before putting in the milk, and to rub a little butter on it, in order to lessen the danger caused by the buttermilk coming in direct contact with the brass, and also, according as the milk is sold, and the brass becomes more and more exposed, to rub the indicator from the surface of the milk upwards, not down, for fear of any lodgment that might possibly accumulate being introduced into the milk. Some have done that scrupulously. Buttermilk comes in from the country in churns with brass indicators that are simply covered with vermin. I had a prosecution the other day on that point.

2993. That was buttermilk that was sent into your district?—Yes.

2994. What penalty was imposed?—6s. fine and 6s. costs.

2995. Do you think that that is sufficient to meet the criminality of the case?—No. But in this case the defence put forward was that the milk was not for sale—the Order relating to the cleanliness of vessels only applies to vessels containing milk for sale—and

it was alleged that the milk in question was for baking purposes; however, I do not think the fines are sufficient at all.

3996. Or a sufficient deterrent to others?—No, I do not think so. Then as regards the milk being exposed in the shop. I used to be able to get a good deal of milk at first, but then it began to disappear, and I was told there was no milk; but within my view, in rooms off the shop, I could see vessels under sideboards, and children coming out with milk. It was only this week a child went into a shop while I was there and asked for a halfpennyworth of milk. The person in charge asked for whom it was, and when told requested the child to come by-and-by. I asked the vendor if she had all her cans in view in the shop, and she said yes. She had been fined before for having dirty cans, and since that prosecution almost all the cans have disappeared out of her shop. I have tasted milk sold in a kitchen. I could never get it in the shop. I happened to go in one day when it was being supplied out of the kitchen. When I saw it sold I had power to enter, and I found that the milk was kept in a shut-up press in which there were linen and groceries, and the milk was served out of an open can. When I opened the press it had an extremely unpleasant smell. I told the lady I would have to prosecute, and told her to bring the milk into the shop. I had not my sample requisites with me at the time, and I went away for them. I was barely half an hour away when I returned to the shop and all the milk was gone. I made inquiries among some very poor people as to where they got the milk and was informed it was supplied from the kitchen. I asked them would they mind getting it for me and they would be compensated for the loss of their day giving evidence, and the person of them said they would not give the person away. I kept this same shop under observation, and one evening in January, between 6 and 7 o'clock, I walked up and down on the opposite side, where there was no light. I saw a small child going into the shop, and an attendant coming out of the kitchen; taking the vessel from the child, she returned with it to the kitchen, and subsequently returned to the shop and handed the vessel to the child; afterwards I saw the child coming out with milk in the vessel. I asked the child where the milk came from, and she told me from an inner apartment. I went into the shop and said I wanted a pennyworth of milk out of the kitchen. "I have not got it," I was told. I said, "You see after selling it to this child," and fortunately she allowed me in. The kitchen was not kept clean. This was a second offence. I took a sample, and the Certificate was, "Adulterated with 35 per cent. of added water." Proceedings were instituted, and a fine of £8 imposed for the first offence, of keeping milk for sale in a press in the kitchen, and £1 for the second offence. A fine of £5 was imposed for the adulteration, although there were several previous convictions in this respect. There was another case of selling milk from a kitchen at a dairy, where for some years I could not get any milk for sampling purposes, and one day I found a little boy coming out with milk. I brought up the case, and the vendor was let off with a caution, and no penalty inflicted at all.

3997. With regard to the poor, have you any opportunity of discovering whether or not the children of the poor receive in your district a sufficient quantity of milk as food?—I cannot say as to its being sufficient, because a great deal of poverty exists, and sometimes people don't make use of the money for milk for their children. They make use of it for other things.

3998. No case has come under your observation in which the infant child was obviously suffering from want of proper treatment or nourishment?—No. There are not very many children bottle-fed amongst the very poor people.

3999. Mr. O'BRIEN.—You mentioned just now that you could not get these poor people to get milk for you?—Yes.

4000. For what reason did they refuse?—It was because they would not get the vendor into trouble. In the case of stores, some of the dairy proprietors have a shop, and in the yard they have a store. I had a case not very long ago where I visited the store of the shop, and whenever I called attention to the milk

not being covered in the store it was done. The people don't say "it is not for sale." On one occasion when visiting the store I asked for a pennyworth of new milk out of the churn in the store, and the man refused to give it. The mistress also said that she would not give it out of the store, but that she would give it out of the shop. When the man refused me I went into the shop to the mistress and she said that the milk in the store was milk that was about to be sent to somebody and the amount in it was needed down and could not be sold. I told her I only wanted a small quantity and that she could easily replace it, but she refused to give it. I instituted proceedings, and when serving the summons was told by the proprietor that the milk could not be sold because it was for churning. The case came before the magistrate, and a great many witnesses were examined. The cases against the defendants were dismissed because, although the man himself proved that the churn from which I asked the sample had been out in the air all the morning and milk had been sold from it, and that the milk in it was over from the morning's delivery, the magistrate held it was not exposed for sale and therefore I had no legal right to ask for it. The man was asked whether if his supply in the shop ran short and if a customer came in, would he refuse that person a pint of milk from what he had in the store, and he said he would. The magistrate did not rely very much on the evidence, but in face of the law he had to dismiss the case because the store was not open to the public. The same trade is carried on as regards butter and margarine.

4001. I am afraid we cannot go into the question of butter. You have already told us very explicitly, indeed, the manner in which trade is practised in order to evade the law with regard to exposure?—Yes.

4002. You also, I notice from your summary of evidence, desire to see skimmed milk labelled when offered for sale?—Yes. I saw some others containing skimmed milk. To an ordinary consumer it was like new milk. I was of opinion then that under the circumstances it should be labelled. I told three people to label the milk. They neglected to do so, and proceedings were instituted. The case was adjourned for the purpose of having the Board of Agriculture consulted, and the result of their evidence was that the labelling only applied to the milk in tins, not in open receptacles, such as crocks or churns. The defendant in that case wrote to the Board of Agriculture for a definite reply, and the case was adjourned purposely, and the reply was quoted against us.

4003. Sir STEWART WOOLHOUSE.—Is there much skimmed milk sold in your district?—Not much. There is only one shop that sells skimmed milk.

4004. What is it used for?—Baking bread, principally. I do not think people drink it much.

4005. Mr. WILSON.—With regard to the cleansing of vessels, have the people a suitable water supply?—There is always a sufficient quantity of water, but I have not been present at the cleansing. In the summer time, when the cows go out to grass, I do not see the cans at all in some of the dairies. They have gone to the fields. As to the cleanliness of the vessels, I understand that the cans are cleansed at the fields.

4006. I gather from what you say you would like to have power to follow these cans?—They should be under the supervision of some Authority.

4007. They have that power at the present time, I take it, if they choose to use it?—That is so.

4008. The point was that Urban Authorities would like to get power to go outside their own area in order to see that the milk was handled under proper conditions?—Yes.

4009. If such powers were given, you would probably be one of those who would go to the country and see that the milk cans were properly treated?—Yes, but it would be more convenient for the local authority in the district where the land was situated to inspect them.

4010. You referred just now to the very large percentage of added water in buttermilk?—Yes.

4011. There is no legal standard for buttermilk?—Yes, 25 per cent. of water present is supposed to be sufficient under any circumstances.

4012. I rather gathered that there was no legal standard?—The Food and Drugs Act gives 25 per cent.

3013. There is a habit I have seen in other parts of Ireland of bringing pig feeding in the returned empty vessels?—That does not go on in our district.

3014. Mr. CAMPBELL.—What becomes of the pig feed in Rathmines?—I suppose they bring other vessels for it. If we found cases with pig-feeding in them we would prosecute.

3015. Mr. WILSON.—What would you substitute for the brass indicators?—An indentation or raised letters. I would like to show the Commission what the Rathmines Council have provided me with for the proper examination of the drums. This is an electric lamp. The drums are deep and difficult to examine, and the vendors will say that they are perfectly clean. Sometimes the milk store is in rather a dark place, and in order to ensure perfect inspection, the Council have provided this lamp, which enables me to closely examine the interior of the tankards. They have also provided me with this instrument, which has three points—one for the bottom of the drum, the second for the shoulders of the can and the seams down the side, and the third for the lid. By this instrument I can ascertain if all parts of the vessels are perfectly clean.

3016. Mr. CAMPBELL.—Is there a society of milk in your area?—Yes.

3017. What is it being sold at?—From 3d. to 4d. a quart.

3018. Rathmines has not got a working population?—Yes, there are upwards of 300 tenants in the District Council's cottages.

3019. And are they able to pay 4d. a quart for milk?—It comes dearer on them, because they buy it in smaller quantities.

3020. The present price of milk is such that the working people are not able to get a proper supply of it?—They can get it for 3d. a quart.

3021. Are they able to afford it?—I dare say they would for what they buy.

3022. You don't think that the children or the young people are in want of milk because of the high prices?—I cannot say that. For anybody that is in very poor circumstances, the Union supply the milk.

3023. But still, taking an ordinary working man, do you think that he is getting enough milk for his family?—No.

3024. Is there much separated milk brought in?—No. There is only one person that I know of that sells it.

3025. What is it sold at?—1d. per quart.

3026. Do you take samples of milk?—Yes.

3027. How do you take the sample—do you take it off the cart?—In the course of delivery at the door, if I do not wish to take it out of the can he is delivering from, I can take it out of any other can on the cart.

3028. Have you found the quality satisfactory?—It is not too bad. I have had about sixty prosecutions for adulterated milk in ten years.

3029. What has been the percentage of fat?—I had only about eight cases of milk that was deprived of its fat?—Yes.

3030. Does the analyst certify that the milk is deprived of its fat?—I have to rely on the analyst's certificate.

3031. Is that how he puts it?—Yes.

3032. Does he say it contains added water?—Yes, if it does, and gives a certificate to that effect.

3033. Sometimes it is certified that it is deprived of its fat?—Yes.

3034. And sometimes the certificate is for added water?—Yes; there was a case where the milk was deprived of its fat and there was added water.

3035. You cannot tell me anything about the percentage of fat found in the milk?—No. In milk there is not adulterated or deprived of its fat we are only told that it is "very rich," "rich," "above average," "average," "under average," "poor," and "very poor" and "dreadful."

3036. Miss McNULT.—Don't you get the specific percentage?—No, except in the case of adulteration or the milk being deprived of its fat.

3037. Mr. CAMPBELL.—You get the details only when milk is adulterated or deprived of its fat?—Yes, not otherwise.

3038. Do you examine the milk at the railway station?—We have only Ranelagh and Milltown stations in our district, and they don't deliver milk at these stations. It would be a very good thing to examine the cleanliness of the can and the milk at the stations.

3039. Mr. O'HARA.—You seem to have some difficulty about the cases that disappear from the shop?—Yes.

3040. All the shops are registered?—They are.

3041. Would it be a good thing if there was a registration number on the cans too?—I thought of that also, but it would not work.

3042. You think it would be absolutely of no use if the milk cans were numbered?—No, because there is a variation in the number of cans kept, and they have cans sometimes from other people.

3043. Cans sent in from the country?—Yes, and sometimes the milk runs short and they have to buy the milk on the road. I found a can in a shop and was told that it was left by a milkman.

3044. In the shops where the milk is sent in from the country is the milk generally kept in the cans that it comes in, or is it put into another can?—In some cases it is kept in the cans. This week I got a can outside in the street which came from the country, and I took exception to it. We examined the interior of it, and found a yellow lodgment at the bottom, and I told the vendor to warn the men that sent him in the vessel.

3045. You have no power to prosecute a man in the country?—Yes, on the evidence of the men in the shop I can do it, when the offence occurs in our district.

3046. Miss McNULT.—In giving your evidence about taking a sample of the milk, do you suggest that where the milk is sold, an inspector ought to be able to take samples from any part of the house?—Yes, and that any one I find on the premises should be under my supervision, as well as the can in the shop. If a person had milk in the kitchen and had added water in it, then if I were able to take a sample of that milk and could regard it as being exposed for sale, we could prosecute. We are sometimes told that the milk is watered for the vendor's children, and I have seen cases where a pint of water is put in the can, and when a pint of the adulterated milk is sold, another pint of water is put in the can.

3047. Sir BRADY WOODHOUSE.—Do you believe that preservatives are used?—I don't think so. The analyst is supposed to examine samples to see if preservatives that are injurious are present.

3048. Mr. CAMPBELL.—Do you permit of preservatives at all?—I don't know. I suppose a small quantity is allowed.

3049. Don't they use washing soda to keep the milk sweet?—I have not heard of it.

Mr. ANDREW WATSON, M.B.C.V.S., examined.

3050. The CHAIRMAN.—Mr. Watson, the Commission became so interested in regard to some points given in your valuable evidence on the last occasion, that I am afraid they omitted to inquire into some rather important questions on which you desired to give information, and we shall now be very pleased to take up these questions which were not dealt with in your previous evidence. I see that you are of opinion that Article 10, sub-section 6, of the Dairies and Cowsheds Order, which deals with the means to be provided for the cleansing of milk vessels, should also be put in operation in the Dublin area?—I think I made some suggestion as to Article 7, sub-section 3, dealing with

the cleansing of the interior of cowsheds, on which I am very strong. I would like to deal with that first. There are too many alternatives in that Article, and there is no definition of what sort of flags are to be used, nor what description of bricks, nor of what nature the paving is to be, whether cobble stones, or rough paving sets, or what constitution concrete. All these should be defined. I know from experience in Dublin dairy yards that we asked the cowkeepers to put down concrete beds and concrete channel courses, and on account of there being no special definition in the Order of what concrete is, the concrete put down is of so inferior a character that in a week or a fortnight

it is broken up. I think, therefore, that it is of the greatest possible importance, if we are to have proper cowsheds, proper bails and proper channel courses, that there should be a definition, and I have drafted a definition that would meet the case as follows:—

"Concrete for cow bails shall be formed of first layer of coarse gravel, etc., upon which is a two-inch layer of concrete (consisting of six parts of clean gravel and one part Portland cement), and over this again a two-inch layer of concrete, 3 to 2 fresh water sand and cement.

"Two inches 5 to 2 fresh water sand and cement.

"Three inches 4 to 1 parts of clean gravel and Portland cement.

"Four-inch broken stones."

3051. Mr. CAMPBELL.—Is not a two-inch layer rather thick? I don't think so, but for heavy cows standing there for months. I think it is much cheaper in the long run to lay down such a good bed as will stand for years.

3052. Do the cows' udders not get damaged on the concrete; is it not very solid?—I don't think so. They usually have straw.

3053. We have had cases of it reported to us; in fact we have had numerous cases in which farmers have had difficulty in keeping the quarters of udders sound, and several people said that they thought it was the solid concrete that was doing it. As you are aware, it is not always possible to have straw under the udder—I don't think there is much in that. I heard Dublin dairymen making a number of complaints against concrete, and their chief objection is that the animal is liable to slip, but I have never heard anyone complaining of the concrete causing sore udders.

3054. Would it be possible to suggest something that would be kinder? I cannot think of a better word—to be upon?—Asphalt is near to be so.

3055. Would you be satisfied with tar, pitch and sand to graze in cobble stones?—Yes, if the cobble stones were set in cement.

3056. I have got a feeling that we should rather advocate that kind of floor than concrete?—I would have no objection.

3057. The CHAIRMAN.—It would not be less expensive?—It would be more expensive, I think.

3058. Mr. CAMPBELL.—Tar is not very dear, and the cobble stones are usually there in the yard. You don't think there is any objection to that from a sanitary point of view?—No.

3059. The cows would not be so liable to slip?—No.

3060. And it would not be so solid?—It would have a more pleasant aspect.

3061. Mr. O'BRIEN.—On that question of the concrete floor, and slipping on it, don't you think that the cows which are fastened up with what are called bails get a great deal of support when they are rising, far more than if they were chained up?—I think the cow in bail has very little freedom. I think it is a very cruel way to keep a cow. It is, of course, the most effective way to keep a cow close.

3062. It is impossible, I think, to keep them clean except by the use of bails?—From the point of view of cleanliness, the cow in bail is better, but it looks a most cruel thing.

The CHAIRMAN.—It is unpleasant for a cow to be standing, so to speak, at the edge of a precipice; if she varies her position she must stand in an uncomfortable way.

3063. Mr. CAMPBELL.—If you have the ordinary plan of having a division down to the shoulders of the cow, that is sufficient?—Yes.

That is what we advocate, and I think it is being adopted generally by dairymen as being the best that they know of.

Mr. O'BRIEN.—I cannot see any particular objection to the bails. The animals can move their heads up and down. They cannot move backwards or forwards. It is precisely the only way that you can keep animals clean, and in the case of heavy cattle my experience is that they support themselves a good deal with the bails, and are not much inclined to slip.

3064. Mr. CAMPBELL.—How would you finish the floor?—Hough.

3065. Prof. MATTAN.—One objection to this concrete floor is that they bruise themselves considerably in getting up?—No.

3066. They get big knees?—Yes.

3067. In Cheshire, they always use a puddled clay in front?—Yes.

3068. The CHAIRMAN.—Have you anything further to say on this question of flooring?—I suggest that the stippling referred to in sub-section 3 of Article 7 of the Order shall mean that the upper strata of concrete (viz., two inches) are replaced by asphalt, the other two strata remaining unchanged. I have mentioned the other two strata in connection with the concrete floor already.

3069. How does that work out as regards cost as compared with concrete?—It is lower. You have to bring bag loaders into the premises, and this is bound to run into more money than concrete.

3070. With reference to Article 10, sub-section 4, of the Order, you deal in your memorandum with the question as to the means to be provided for the cleansing of the vessels; do you believe that the existing methods are as effective as they should be?—They are not. I see in very few establishments proper boilers for preparing water for the washing of churns or vessels. When they are asked how they will wash the vessels, they show you a small bottle, but that is not sufficient for the washing of vessels. The churns are sometimes cleaned on the yard, but in most cases they are cleaned on the premises where the milk is sold.

3071. They could be more easily provided with proper appliances for doing it in the shop than in the yard?—Yes, there is no way of boiling water in the yard. There is another thing I would like to see in force—a suitable stock of brushes for cleaning the churns, because I am afraid that the brushes that are used for this purpose are not used for other purposes besides cleansing the vessels.

3072. And you would make it a condition, just as you do for the washing of the heads of the milkers, that in connection with the cleansing of the vessels in the shops, brushes and other requisites that may be necessary should be provided?—That is so.

3073. You entertain a strong view with regard to exposing milk for sale in shops abutting on living apartments?—I do.

3074. We have heard evidence of frauds arising in consequence of that. We are told that the Sanitary Inspectors have not got power to enter any apartment other than the apartment in which the milk is exposed. Do you think it desirable that power should be conferred on the Sanitary Inspector to go into whatever apartment milk is stored, even though it may not be the exact place where it is vendible?—I do, certainly. I think it is very necessary.

3075. There are some means adopted by vendors of evading the law; they refuse to supply samples on the plea that they have no milk for sale?—That is so. The milk in a great number of the dairy shops is bad enough without being brought into private apartments.

3076. Prof. MATTAN.—Would you recommend a lock-up milk shop, and every apartment in it open for inspection?—Yes. I am also very strongly of opinion that the Dairies and Milk Shops Order is not strong enough upon the fact that the shop should be used exclusively for the sale of milk and milk products. In some cases, you have the most incongruous things as a milk shop, and I have seen paraffin oil, tord, coal, and millinery in a milk shop. I certainly think that that portion of the Order is altogether too weak.

3077. The CHAIRMAN.—You are not the only witness who has expressed that view. You entertain the opinion that where there is a suspicion with regard to the condition in which the milk is supplied, there should be power to suspend the sale of it?—Not alone to suspend, but the local authority ought to have full power to destroy all milk under suspicion, and to give compensation to the owner. In Dublin, we destroy the milk and allow compensation. If the Local Government Board were too stringent, we could, I believe, be surcharged for allowing the compensation.

3078. The custom is that you, recognising the hardship imposed on the vendors by confiscating their milk, feel justified in giving compensation for what you destroy?—Yes. I think there ought to be some law whereby we would be legally protected for doing so.

3079. I think you went into the question of the measure put on the occasion of your previous examination, so I take it that that is not one of the questions on which you desire to amplify your evidence?—There is a difficulty in fixing the distance from the cowshed to the manure heap. If you fix the same figure in the city as in the country you would close up every dairy yard. regard ought to be had to the number of times the measure is moved.

3080. Mr. CAMPBELL.—And something depends upon the way in which it is kept there. If it is scattered all around the place, so that people's clothes become contaminated with it, that is different from where it is kept in a proper receptacle?—Yes.

3081. You would take into consideration also whether the milk was carried through that yard?—Yes.

3082. The Board of Works' witness said that they fixed sixty feet, not because it was absolutely necessary, but because it was safe?—I think it is scarcely necessary to put a measure put that distance away.

3083. The important thing is that it is so kept that it is not a source of contamination?—That is so.

3084. The CHAIRMAN.—You say in your prems, "No mention is ever made of the dairy yard or other buildings in connection with the cowshed; nor does the present law admit any Regulations being made as to the construction of the other buildings, nor as to the surface of the yard." You think that a very undesirable condition of things?—I think it is very undesirable. It is impossible to have a clean cowshed with a yard whose surface is like a ploughed field in wet weather, and which is saturated with the secretions of the animal. We frequently go into the dairy yard and find it in the filthiest condition. I know that this has been a serious cause of complaint, even by the Local Government Board Inspectors, but it appears we have no legal powers. Before we can bring in By-laws in respect of the yards we must get a special Act of Parliament.

3085. There is no provision made in the law to improve the cleanliness or sanitary condition of the yard?—That is so.

3086. You gave us here an extract from the Glasgow Police Amendment Act of 1896 in reference to Article 21 of the Cowsheds Order, and you state the extract would meet the requirements of this case?—Yes. I do not think a word of the clauses I have given from the Glasgow Act should be left out. I think it is all wasted in dealing with this most important matter. These are the Clauses in the Act to which I refer:—

"Whenever it shall be certified to the Corporation by the Medical Officer or other registered medical practitioner that the outbreak or spread of infectious disease within the city is, on the opinion of such Medical Officer or Medical Practitioner, attributable to the milk supplied by any cowkeeper, purveyor of milk, whether wholesale or retail, or occupier of a dairy milk store, milk shop, or to milk supplied by one or other of several such cowkeepers, purveyors of milk, whether wholesale or retail, or occupiers of dairies, milk stores or milk shops:—

"(1) The Corporation may require such cowkeeper, purveyor of milk or occupier, whether within or without the city, to furnish to them, within a time to be fixed by them, a full and complete list of the names and addresses of all his customers within the city so far as known to him, and such cowkeeper, purveyor of milk or occupier shall furnish such list accordingly, and the Corporation shall pay to him for every such list at the rate of shillings for every 25 names contained therein, but no such payment shall exceed two shillings, and every person who shall wilfully or knowingly offend against this enactment shall for each such offence be liable to a penalty not exceeding five pounds, and to a daily penalty not exceeding forty shillings.

"(2) The Corporation may require such cowkeepers or other to furnish to them, within a time to be fixed by them, a full and complete list of the names and addresses of the farmers, cowkeepers, milk dealers, or other parties from whom, during a period to be specified, the milk or any part of the milk which they sell or distribute was obtained, and, if required, to produce and exhibit to the Medical Officer or any person deputed by him, all invoices, pass books, account or contracts, connected with the management or purchase of milk during such period, and such cowkeepers or others shall furnish such lists and pro-

duce and exhibit such invoices, pass books, account or contracts accordingly, and every person who shall wilfully or knowingly offend against this enactment shall for every such offence be liable to a penalty not exceeding five pounds, and to a daily penalty not exceeding 40/-."

3087. You think it is desirable that the Local Authorities should be furnished with a list showing the residences of the people engaged in drawing the milk from the cow and handling it at its various stages, in order to ensure that they would not be disseminators of disease themselves?—Yes.

3088. You would have all the conditions set out in the Clauses of the Glasgow Act, which you have quoted, put into operation in Ireland?—Yes.

3089. Without any limitation whatsoever?—Yes, without any limitation.

3090. Lady EVERARD.—I see that in connection with Article 16 of the Order you say: "Are the learned professions and the public really in earnest about washing milk free from tuberculosis; if so, how is it that the large hospitals and institutions governed by medical men and good class commercial men do not insist that the milk supplied to those institutions is from stock that has had the tuberculin test applied to it?" What means have you of knowing that this is not done?—I have made inquiries, and I know it is not done. I know that even in the Samaritan it is not done.

3091. The CHAIRMAN.—Would you slaughter all the animals that re-act?—It would depend whether they were suffering from open tuberculosis. I would recommend isolation of the re-actors from the healthy stock, but in cases of open tuberculosis I would recommend slaughter.

3092. Mr. WILSON.—I saw recently a cowshed built on the principle shown in this sketch. (Exhibits.) In the construction you will notice that no timber touches timber; there is no place for water to lodge, and there is no place where there is lack of ventilation. Would you approve of a building so constructed?—Yes. I would certainly like it to be laid down distinctly what material should be used in the erection of the dairy sheds, because I think the less timber in the cowshed the better. If exclusively built of concrete, brick, or stone, and with a slate or galvanised roof, I think it would be better, as the building would then admit of better disinfection. Where you have buildings composed of timber it is almost impossible to have perfect disinfection.

3093. Mr. CAMPBELL.—You referred somewhere in your evidence to the fact that you insisted on milkmen wearing a smock?—Yes.

3094. I have been making some inquiries about that, and I find that there are some persons who won't use it because they are ashamed to use it, but they could be induced to wear a good apron. Would that satisfy you?—Yes, if it was big enough.

3095. Prof. MERRIM.—An apron and sleeves, of course?—Yes.

3096. Mr. CAMPBELL.—There are no sleeves, but you think they are very essential?—Yes.

3097. The CHAIRMAN.—Is there any further point you would like to deal with?—There is just the question of the regulations as to the keeping of pigs under the Order.

3098. Is that sufficiently strict?—No. I think pigs ought to be excluded altogether from dairy premises. The Dairies and Cowsheds Order only objects to pigs being kept in the same sheds where the cows are.

Owing to the manner in which pigs are kept in Dublin, and the possibility of the infection of the milk, I would exclude them altogether from the dairy yard.

3099. Prof. MERRIM.—That would apply to city dairy yards?—Yes.

3100. You could not exclude them from the dairy yards in the country?—I would like to see them put out of the Dublin dairy yards.

3101. Mr. CAMPBELL.—What do you mean by a dairy yard?—I mean a yard where the cows are kept.

3102. Do you find any difficulty in understanding these terms in the Order?—No.

3103. The Order is quite clear to you?—Yes.

The Commission then adjourned to the following morning.

3129. At what period did the milk begin to come in large quantities by rail?—Fifteen years ago it came in abundance. Before that it only came now and then. When the creameries had an overflow they would send it to Dublin to wholesale men, and sell it to them.

3130. And would it be sold at a price less than that given to the ordinary milk producer?—Yes.

3131. I believe the cost of transit has been reduced in the recent past?—I do not know very much about the cost of transit.

3132. There are now more facilities for the carriage of milk by train than were given when the trade was of less volume?—Yes. They are sending a lot of milk at the present time. When I was in England in September, the Editor of our paper, and the Chairman, Sir George Beeson, were talking about prices, and they were saying that there was a quantity of milk coming into London from the South of Ireland by the Fishguard route.

3133. We have had that already in evidence. As regards the cost of getting cows, we all know that all the Dublin cows are grazed in pastures in the summer. Has that varied from the period with which you are familiar, up to the present?—Yes, because a lot of grass used to be taken then from the owner by the grazier, and there was no intermediate man. No oneowner interfered in the matter, and they used to make their own prices, and in many cases I used to get facilities because I paid down money; I used to get the land five or ten shillings cheaper than the man who would have to give him.

3134. The trade is carried on differently now; it is done by commission agents, and the commission is charged on the land bought?—Yes.

3135. And that is an additional burden on the owner?—Yes.

3136. You wish also to refer to the prices current for what is known as dairy land; as it dears now there it used to be in your early recollection?—At the present time it is impossible to get the cost price of dairy land.

3137. And that is largely due to the importation of frozen meat?—Chilled beef.

3138. The market which was heretofore supplied by the fattened dairy cows is now supplied by chilled beef?—Yes.

3139. And that seriously depreciated the price of the fattened cow?—Yes.

3140. With regard to the Dairies and Cowsheds Order, how far do you think the application of that Order has interfered with or restricted the trade in milk?—Well, that is just what I wanted to tell you. Since I sent in my price of evidence, I got the oldest man in the trade to come and spend an hour with me one evening, and we went into this matter. We went into the number of cattle kept then, within a quarter of a mile radius of my yard in Cork Street, and we found that there used to be 2,445 head of cattle kept in these yards, and the majority of the cows were kept in Mansergh Lane. Now there are only between 500 and 600 cows in that area at the present time.

3141. To what do you attribute that change?—Is the first place, the members of the trade are not getting compensated. The dairy business is very laborious and slavish work—winter and summer—early hours, long hours in the shops, very often perhaps having to go to the yard to look after a springer, and stay up all night. Then you have, perhaps, inspectors like Mr. Watson coming in, who order you to do this and that. Of course, the majority of the men in the trade have no interest in their holdings. Very many only take them for six months.

3142. That is, the yards and the premises in which the cows are kept?—Yes. And you cannot expect them to expend much money on them. I have read the evidence of the Local Government Board witness, who said that they would advance money for the erection of cowsheds, but I do not think they would advance money for the erection of cow byres of a certain standard proportion, but, of course, that applies to the country rather

than to the city?—I am afraid there is not profit enough to induce men with capital to go into the cow-keeping business.

3143. The variation in trade and reduction in profit have been instrumental, in your opinion, in reducing the number of those who are engaged in cow-keeping as an occupation?—Yes. And many of those families who succeeded then gave up the business; they would not continue it.

3144. I do not think you quite answered my question as to the effect of the Dairies and Cowsheds Order. What I want to know is, how far do you think the operations of that Order have militated against the interests of the trade?—Well, I would be in favour of strict supervision, but in many cases the officers are not what they should be.

3145. You move then qualifications are not as high as they ought to be?—Yes. And they are very aggressive to those whom they visit.

3146. We can hardly go into the question of their manner and demeanour. With regard to the qualifications, that is a matter of interest. Would you prefer to have professional men only engaged in the inspection of the cows and dairies generally?—I would. I have known men here, sanitary inspectors, coming into the yards and ordering the cattle to be removed, and when Mr. Watson was called in to examine the cattle he said there was nothing wrong with them. The unqualified inspector coming into a yard can give a lot of trouble and annoyance.

3147. Quite true. And you think that with a higher sense of responsibility and better training, the administration of the Order would be less irksome to the cowkeepers and more efficient from the point of view of administration?—Yes.

3148. You think the Local Authorities would be warranted in paying increased salaries to the officers they employ rather than to take unqualified men at lower salaries?—I do.

3149. And you think that would be a useful expenditure of public money?—It would, I believe. In England they have no such thing as sanitary officers. It is a veterinary surgeon, and he goes round. He goes outside his district. I know in Leeds he goes ten or twelve miles into the country to inspect the cattle whose milk is coming into the city.

3150. I take it that the Leeds Municipal Authority has obtained power under a local Act to enable them to go into the country to inspect the stock from which the milk is sent into the city?—Yes; and when there is any epidemic.

3151. Coming to the question of tuberculosis—has not that malady been very much reduced?—I cannot say that, I am not in a position to say. I have attended myself all the Public Health Congresses in the United Kingdom for some years past, and all the papers, both in the Veterinary sections and in the Public Health sections, were, five or six years ago, about tuberculosis and new risks. Well, of course, I joined in the discussion, and I got several questions. The speakers admitted that they were speaking from theory. They said that Professor This said that, and that Professor That recommended this, but they never put the theories into practice.

3152. Perhaps if I put the question in this way you would be able to give me some helpful information; from your own experience, do you think the number of cattle suffering from tuberculosis is greater or less than twenty years ago?—It is less in the Dublin district.

3153. Have you had animals condemned, or have any of the members of your trade had animals condemned, by the Inspectors of the Corporation for clinical tuberculosis?—We had. There have been several members, and in one case Mr. Watson got an animal slaughtered, and there was no sign of any disease, and the man got nothing but the price of the carcass for it.

3154. He only got what the carcass realized?—Yes. And that is not so long since.

3155. Of course, that might be an isolated case, but, speaking generally, what percentage of cows have been slaughtered by order of the Veterinary Inspector of Dublin for clinical tuberculosis?—I should say a very small percentage.

3156. Would it amount to one per cent?—I do not believe it would. I asked Mr. Hedley some years ago

what was the percentage of tuberculosis at the time of the wholesale slaughter Order, and he told me it was only a decimal, and that no more healthy cattle were ever brought into the Abattoir and slaughtered.

3184. What period do you refer to as the wholesale slaughter period?—1894 and 1895, under the Hume-Paine Act.

3185. Prof. MORTON.—There were no very careful statistics made as regards tuberculosis?—I do not know.

You may take it that that is so.

3186. The CHAIRMAN.—The members of your trade, speaking generally, are quite willing to co-operate with the Local Authorities in order to secure the production of milk under the most cleanly and hygienic conditions possible?—Yes, each and every one of them.

3187. Even although the conditions laid down may in some degree impose financial burdens on them, are they still willing to comply with the requirements in order to secure the health of the community at large?—Yes.

3188. From your personal experience, do you think more care is exercised now with regard to the cleanliness of the milk vessels and the personal habits of those engaged in the trade than twenty-five years ago?—At that time it was only an oak churn that was used. Now it is a steel churn, and they see much more easily cleaned. A small little of water would cleanse them, and anyone who would not keep them clean, I would have no sympathy for them if they were prosecuted.

3189. It is so simple that it would be reprehensible to omit it?—Yes.

3190. With regard to the personal habits of the milkers, have they improved under the administration of recent Orders?—Yes.

3191. And the men are more careful with regard to the handling of the milk, keeping the cows in a cleanly condition and the vessels scrupulously clean, than they were ten or twelve years ago?—They are always in dread of a visit from the Dairy and Veterinary Inspector; they do not know who is knocking at the gate, and they are anxious to keep themselves clean. Everyone in the trade supplies a towel and plenty of soap and water, so there is no excuse.

3192. With regard to the keeping of the sheds in which the cattle are housed during the winter season, have they been improved to any considerable extent by reason of the inspection and of the Orders laid down?—They have, sir. I had to improve some of my own sheds to please Mr. Watson.

3193. Will you tell the Commission how far you think the result of these conditions has restricted the supply of milk?—Well, I should not say that the new conditions have restricted the supply of milk. It is the men who do not care to invest their money in the trade, because they cannot make it pay.

3194. You think it is not by reason of the worry consequent on the visits of the Inspectors that a certain number of people have abandoned the trade, but because the business has ceased to be a remunerative occupation?—Yes. Our auditors of my books has told us that for the third quarter of last year we were over £100 out. I am not a philanthropist, and I should not care to carry on the trade if I were to lose.

3195. Everyone expects a reward for his time, labour, and supervision, and that is, of course, not unreasonable or unusual. With regard to the question of compensation paid for the animals that are proved to be suffering from tuberculosis, do you think that the sum allowed, £10, under the provisions of the Act is sufficient?—Not to encourage the men to report the case immediately.

3196. You would convey to the Commission that if the owner of a suspected animal felt satisfied that if the animal was condemned he would get its full market value, he would be more likely to report it immediately his suspicions were aroused?—That is so.

3197. Do you think that the Local Authority should be the body responsible for the compensation to be paid for the destruction of animals in order to safeguard the public health?—I do think so, because anything that is done for the public good of the citizens should be paid for by the citizens.

3198. I wanted to know whether you thought the citizens should pay the compensation, or whether the State should become contributors?—I would prefer that the State should contribute. The Danish Government places £5,000 a year at the disposal of the Minister of Agriculture, and they provide the services of the veterinary surgeon and the tuberculin free. And they give prizes annually to the herds which are free from tuberculosis.

3199. Do you not think it would be in the interest of the trade generally that the Orders governing the production and sale of milk should apply universally in city and country?—I do.

3200. Is it your opinion that proprietors in cities where the Order is rigidly enforced by the Local Authorities are competing on fair terms with those who reside in outer districts where the Order is not rigidly enforced, or not enforced at all?—I believe that what applies to one should apply to all. Men are coming into the city from many districts where there is no control whatever. They come and deliver milk. That is very unpleasant. We have to compete with these men, who do all the work themselves; they milk the cows and feed them and distribute the milk, and so men can keep his place in a proper condition when he has to come into the city to deliver milk, nor can he be in a cleanly state to deliver milk when he has that other work to do.

3201. I wanted to know if it was your opinion that when Dublin cowkeepers were compelled to put certain capital expenditures into their premises and comply with stringent rules, and are compelled to compete with other milk proprietors where such rules are not enforced—do you think that is fair competition?—I do not think it is.

3202. Do you think, Mr. Hatch, that it would be essential that there should be universal application of whatever Order is issued governing the production and sale of milk?—I do.

3203. That no matter where the person in the trade is resident, he should be controlled by the same conditions and by the same regulations as prevail in a city where he is a competitor with the resident producing milk there?—That is so.

3204. I see that you took the precaution at one period of having a herd of your cows subjected to the tuberculin test?—Yes.

3205. Did that in any way increase the demand for your milk?—The knowledge that you had subjected your animals to that test?—On the contrary, I do not believe we ever gained by it, although it was a very expensive item. I got Professor McWenney and Mr. Watson—he was not then in the Corporation—to apply the tuberculin test. We had to send to Austria for it. There were two or three reactions, and Professor McWenney told me he was sorry that he could not give me a certificate. I asked him why, and he said he would have to make a post-mortem examination of those cows. I asked him would I have to slaughter the cattle and get no compensation, and he said: "You can do that if you choose." I rang up the Abattoir, and we arranged that at 11 o'clock on the following morning there would be two men there to slaughter the cattle and give Professor McWenney and Mr. Watson the opportunity of examining them. Professor McWenney brought several little portions of the animal away with him in a tin box, and in three or four weeks he told me he could find no trace of disease, and he gave me a certificate. We published that certificate and considered our customers, but we never got a single penny by it.

3206. Mr. Watson.—How many animals did you test at that time?—Over forty.

3207. Out of the forty there were only three that reacted?—The third was only suspected.

3208. The CHAIRMAN.—How many years ago is that?—About eight or nine years. Eight, I should say.

3209. I am sorry that the public did not appreciate your action in applying the test, but I am rather inclined to think that public opinion at that time was not so highly educated on that subject as it is now. Do you think your action would be more appreciated at the present time than it was then?—I do not think so, inasmuch as customers will not give opportunities to men who conduct their business on scientific lines. They will go and purchase the article wherever they can get it cheapest. Some years ago I was

serving a Judge in Fitzwilliam Place, and this Judge was dealing with us for some years. Then a man came to serve the house next door, and we lost the Judge's custom because he offered milk at 2d. a quart less than we were charging, and he was paying the cook for the offal of the kitchen and taking it away in his cart. That is not fair competition, and it does not show that even learned gentlemen appreciate all that the trade does. I had several customers in Merrion Square, and I have sometimes refused to put the milk into the vessels brought to me—vessels brought from some of the best houses in Merrion Square. I remember refusing to put milk into a steopan which was taken out of a scullery, because it was not in a proper condition.

3184. So that, apparently, all the trouble in regard to the cleanliness of the milk does not arise from the dairy yards?—No, sir. Often in our shops we have to send to the dairy to send the vessels that are brought to put milk into. There are a couple of matters here that I wish to mention, if you have no objection.

3185. Certainly not; we want all the information we can get?—I gave you already the number of cows, 2,844, that were at one time within a quarter of a mile of my dairy in Cook Street, and I told you that that number was reduced to 500 or 600.

3186. Prof. MERRIM.—How long ago was that?—Twenty-five years ago.

3187. The CHAIRMAN.—Have these cattle been transferred to other districts in the city, or has the number of milk-producing animals been reduced to that extent?—The number has been reduced to that extent.

3188. I take it that, from time to time, the districts in which these dairy yards are situated change. Certain developments take place in certain districts, with the result that the dairy yards are obliged to clear out?—Not in the district I have mentioned.

3189. That does happen in other places?—It might.

3190. But the change to which you refer was not in any degree consequent on anything of a similar nature?—No. It is the reduction in the trade. The men who were in it made no profit out of it, and were not able to meet their liabilities in the end. We object as a body to the restaurants in the city supplying milk to their customers from dairies outside the city. They bring the milk from their establishments in the country, and take back pig-feeding in the carts with the cream from which the milk has been delivered.

3191. I want to be perfectly clear on that point. You think the regulations are not sufficiently rigidly enforced against that class of the community?—They are not.

3192. Prof. MERRIM.—How are you to catch them?—By watching them. There are officers enough in the Corporation to watch them.

3193. The CHAIRMAN.—Mr. Hatch's point is that the members of his trade are under strict supervision, and he thinks that those engaged in an analogous trade should be under equally rigid regulations?—Yes. A lady may go into a restaurant with five or six children, and give each of them a glass of milk. The cow that supplies that milk is as liable to be sick and to be breeding disease as the cow of the man in the city, and often the milk taken in the restaurant may be the means of spreading disease. Of course, it is the dairymen in the district who are supplying that lady and her children with milk who would be blamed for it; and there is no redress.

3194. I understand. But when you committed yourself to the principle of uniform application of the Order in all districts, whether in the city or country, that, I take it, would cover the difficulty arising out of the complaint to which you refer?—I hope it would.

3195. As far as administration can go, it would?—I think it would.

3196. I am quite with you in that?—We object to collecting pig-feeding in any cart that has been delivering milk. It is not right or fair to be collecting pig-feeding in any cart that has been delivering milk.

3197. These are matters rather for the administrative authorities in the city, but of course it is quite right that you should draw public attention to them?

—That is what I want to do. We believe that the sanitary inspectors should not be dairy inspectors.

3198. You think that the duties of inspection should be discharged by professional men with qualifications?—Yes.

3199. And you have experience of inconveniences arising from non-professional men giving orders which were subsequently overruled by their superiors?—Yes. And when certain lady sanitary inspectors visit the dairies, they come out of tenement houses where there may be disease, and their umbrellas had perhaps been touching the sputum, and dip it into the milk vessel. There is not much hygiene about that. I may say that the majority of our members come from the Bathman's district, and I read the evidence which Dr. Fawcett gave here as regards several things. I do not find any objection to his criticism, but I believe we have the right to criticise in return.

3200. That is only fair?—That is all I think I would wish to bring under your notice. I might say that with regard to the tuberculin test that Dr. McManis, of the Alexandra College, was the only one that took a deep interest in it. We have a lot of institutions governed by professional men and others, and if tuberculin is such a serious question, it is very strange that they don't recommend the tuberculin test in connection with the milk supply to the children's hospitals, orphanages, boarding schools and colleges.

Mr. WILSON.—I myself approached three separate public bodies, one a children's hospital and two other hospitals, to see if they would give me any encouragement to apply the tuberculin test on an increased price for the milk, and all declined, and that was only two or three years ago.

3201. Miss McMANIS.—Up to the present, is there any institution in Dublin that makes such a requirement?—Not one. No hospital or union or orphanage or college, and there are a great number of colleges now existing elsewhere which insist on having the test applied. The price of the milk governs everything.

3202. The CHAIRMAN.—Are any questions asked by any purchasers with regard to the conditions under which the milk is produced?—I don't think so.

3203. You have no general experience that would enable you to say that inquiries are made in order to satisfy the people who are paying for the milk that it is produced under hygienic conditions?—No.

3204. They take what they get, and the main factor is the price?—Yes. They would go to the worst conducted dairy in the worst and most insanitary district, and take the milk if they got it for a half-penny less.

3205. Lady EVERARD.—You spoke about restaurants?—Yes.

3206. Does the milk come from the restaurant keeper's own place?—Yes.

3207. They have a farm of their own?—They have.

3208. You consider because they supply the public at the restaurant that they ought to be under the same rules as any dairymen?—Yes. No matter where the milk is sold, or by whom it is sold, all should come under the same regulation.

3209. I asked a question of other witnesses whether the hospitals did not compel any test to be made?—They do not.

3210. Sir BERNARD WOODHOUSE.—Does the Cowkeepers' Association apply to the City of Dublin alone?—City and district. It goes to Tullamore, and as far as Southamham and Rine Bell, on the New Road, and crossing to Inchicore and down to Chapelizod.

3211. So that all that area is subject to the Order?—Yes.

3212. What proportion, roughly speaking, of the milk comes in from beyond that area—milk that is not supervised or inspected; would you say one-half?—I would say there might be one-third.

3213. The CHAIRMAN.—One-third of the whole of the city supply?—No. One-third of the supply to that district. The Great Southern and Western Railway bring up milk, which is afterwards sold by some of their employees to their workers.

3214. Prof. MORTON.—Do you mean that the railway company supply their own employees?—No.

3215. And is the milk distributed by the officers of the company?—Yes.

3216. The CHAIRMAN.—Is that done for profit or merely for the advantage of the employees?—I cannot say.

3217. Have they an arrangement for the distribution of the milk, as it is distributed from the cans in small quantities as it comes from the country?—No. I referred to the employees, not to the Company. In few cases is the steel drum covered. Mr. Watson dances about the place in city dairies when he does not find brass covers on; he would not allow the milk to be uncovered.

3218. Sir STEWART WOODHOUSE.—I take it about one-third of the milk supply of this large area comes from an outside district?—Yes.

3219. How is it that milk is cheaper now than it was twenty years ago, although the cattle have gone up in price?—At that time cattle were cheaper, and there were better milking cows. There was an old Irish breed, and that breed would give nearly one-half as much more as the ordinary cross-breeds now, and it would be rather milk. People have left the dairy trade because it is not profitable. We have to keep up the supply for the customers during the winter months, and this is more expensive on us, and we don't get proper remuneration.

3220. If the competition is lessened on account of there being fewer suppliers, one would think the price would go up?—It has not. I would be sorry to do an injury to my poorer neighbours, but we must remember that the public at large are not doing anything themselves, and it would be very difficult to close up a lot of men and let the company come in. In London there are very large places, and they sell an extraordinary quantity of milk, and distribute it through all parts of the city, but they get their price there. People will come into my shop and ask what do we charge for the milk, and when they are told, they tell us that they can get it for 3d. a quart at another place. In London the price is 5d. a quart.

3221. The CHAIRMAN.—Last year what was the winter price in Dublin?—5d. a quart and 5d. I got 5d. a quart for nursery milk, which I have adopted after seeing it used in London and on the Continent. The cans are sealed and plugged with paraffin, and nothing can get into the can on its way to the consumer, and if the seal is broken on its way to the nursery we expect complaints. The danger is in leaving the cans outside the door. Several cans of milk have been taken from us. The servant won't come out, and the can is left there, and when we call back for the empty can we are told we left no milk.

3222. Lady EVERARD.—Do you know what is the usual price of the milk sent from the country to public institutions in Dublin?—I do not think there is milk of any kind sent up from the country to institutions in the city.

3223. I am speaking of hospitals. I know a case of people who send milk in winter and summer to the hospitals?—I don't know, but I know people who paid 10d. a gallon to retail it again.

3224. Mr. WILSON.—I would like to ask you, Mr. Hatch, what suggestions you would make to the Commission, from your own knowledge of the dairy trade, in order to make any improvement in it—what would you like to see done yourself?—Well, as regards improvements, that is a very wide question. I would not like to recommend anything without consulting others. I do not want to take upon myself anything that I would not be equal to. Everything I have said is from facts and figures. I have collected myself, and I would not like to go into the question of recommendations, but I believe that the majority of the very small men in the city would be most affected by any interference with the trade. It is a pity that they should be, but if there was an interference they should get compensation, I think. Another thing I would like to direct attention to is that men sometimes come up to the city and start cow-keeping without any qualifications whatever. They start with three or four cows in the city and some pigs, and they have no knowledge of cows, or pigs, or horses. They have no education, and they know nothing about the trade.

3225. That brings up the question that has been before us a good deal—a suggestion that dairy premises, where either milk is sold or cows kept, should be licensed rather than registered?—I would advocate that all dairies be licensed, but I am giving you my own opinion now, and am not speaking on behalf of anyone else.

3226. That is what we want to get—your opinion?—I would be in favour of licensing.

3227. What was put before us was that the license should be held subject to clearly conditions being observed?—Yes.

3228. And that after, say, three convictions for infringing conditions the license should be withdrawn—that was the suggestion made to us?—I believe in licensing.

3229. You think that would be a practical method which would tend to improvement?—Yes; I believe it would be a great benefit to the trade generally.

3230. It is familiar to everybody who knows the trade that there must be an immense amount of energy wasted in having five or six or a dozen different men distributing milk along one terrace of houses?—Yes; we all feel that. Our people waste milk at 7 o'clock, another at 9 o'clock, and another won't take it before 11 o'clock.

3231. Would it be possible in Dublin to do something along Continental lines in that matter—for co-operators to form a co-operative society, or ring, or give it whatever name you like, pool the milk in a central depot, and deliver it in larger carts?—I don't think you would ever get the trade in Dublin to consent to that. I don't believe you would.

3232. Another point that has come before us is the selling of milk in the street. You mentioned it yourself just now, pointing towards what is undoubtedly a very great risk, that in the diseased cow from an unlicensed district in the country, whose milk is sold from one carrier to another to fill up a shortage?—That alone please.

3233. How can that be avoided?—I think this is a question you cannot interfere with. It is like every other trade. The butcher has to get points from his neighbors when he runs short, and fruiterers and others have to send out to complete an order when they run short.

3234. The CHAIRMAN.—Would not the uniformity of the administration of the Dairies Order largely minimise the danger arising from that? Supposing the Order was rigidly enforced in every district in which milk is produced, would not that largely minimise the danger to which you refer?—I don't know. I would not like to give you a direct answer to that. I know a case at present where one of the most conscientious men, running one of the best shops in the city, has been prosecuted for selling adulterated milk. He went to his men and asked him did he not get the milk direct from the "dram," where all the milk is mixed up together. The man got his cans and the milk was measured to him, and in the course of the delivery of the milk there was a sample taken. Sir Charles Cameron said that there was, I think, 25 per cent. of added water in the milk. A sample of the milk was sent by the vendor to Mr. Moss, I think, and Mr. Moss gave a certificate to the very same effect. The vendor went to his men, and spoke to him about the milk, and told him that he must have added water to it. The man denied doing this, and made off. The proprietor, owing to the action of his servant, is liable to lose his character. Of course, people never look into these things when they see the charge of adulteration in the Press. This vendor is one of the most conscientious men in the City of Dublin.

3235. Mr. WILSON.—Taking your knowledge of the trade as a whole, do you know whether more or less milk is sold in the streets now than there was twenty or thirty years ago?—I think there are more carts on the road delivering milk. There are more gaps coming about with milk. They come in from three or four miles outside the city—from Blackrock and other places.

3236. Are the Dublin population drinking more milk than they did?—Well, I don't believe that the working classes are, inasmuch as I used to do a lot on the St. Vincent de Paul visits, and in going round to the

poor human one would see "capped" milk. That is separated milk, with molasses in it, in every room, and you would be told that it had been there for a fortnight. If any disease broke out in the town, it is the vendor who would be blamed. The working classes don't use or get sufficient milk at the present time.

3237. Nor did they twenty years ago?—I don't believe they did.

3238. You don't think there has been very much change in that respect?—No.

3239. You must have handled a great many hundreds of cows in your business?—Yes. I keep between forty and fifty milk cows.

3240. You have seen the average of Irish stock?—I would not say that they were all Irish stock. They are imported stock and crossed.

3241. I mean the stock that you could buy in the Irish market. Of that number of cows that you have seen yourself in your own business, you said, I think, that there were very few of them that were recognisably tuberculous?—That is a difficult question to answer without a diagnosis.

3242. I mean recognisably tuberculous?—You could not recognise tuberculosis without a post mortem examination.

3243. I am speaking of the ones you can recognise?—I do not think you can recognise any. You might have a suspicion.

3244. I mean the obviously ill animals?—You see plenty of them in the market, but I do not pay any attention to where they come from or go to.

3245. Put it this way, have you, in your experience, suffered serious losses by cows dying from tuberculosis?—No. I don't believe I had ever a beast, but one, that was tuberculous. Mr. Watson and Mr. Collins visited the yard one day, and Mr. Watson told me he had a strong suspicion of the cow, and advised me to remove her. I said if he had a strong suspicion I would remove the cow to the abattoir, and I did so, and she was slaughtered. He condemned her, and she was sent to what is called the "Paraffin Oil."

3246. From the point of view of the dairymen, the tuberculous cow does not appear to be a very serious cause of financial loss?—To a poor man who gives £18 or £20 for a cow it is a financial loss.

3247. You had only one in all your experience?—Yes, but there are a great number of people in the city who are not able to buy the best class of cow; they buy a cow of an inferior class, and very often the inferior class is more likely to contract tuberculosis.

3248. Prof. Murray—A class of cow, in other words, that someone else has got rid of?—Yes, that someone else has moved on to the city, as the handiest way to dispose of it.

3249. Mr. WINDS.—Would you be in favour of the City Authorities going outside their own area in order to see that the milk producers who are sending supplies to the city were on lines parallel to those in Dublin?—Yes, I think it is essential.

3250. You keep your own cows in a byre in the city?—For about five months in the city, and then I send them out to my farm in the country from the middle of April to the end of October.

3251. While they are in the city they are carefully inspected?—Sometimes twice a week, very often three times a week.

3252. Does anyone follow you up when you go out into the country?—No.

3253. The country authority lets you alone, and the city authority does not follow you?—No.

3254. Taking the broadest possible view of the trade, at the present average retail prices of milk as sold in the city, would you consider that there is any great margin for improvement in the condition of it?—I don't believe there is.

3255. Mr. CAMPBELL.—When you have your cows on the farm in the country, would it be any great hardship to keep them there all the year?—It would; I have no accommodation there for them.

3256. Supposing you had accommodation; I am not speaking now of your cows personally; the question has been raised, why could not this milk be produced

outside the city, and it is from that point of view I am asking the question?—You would have to contend with a lot of men who take no interest in your business. We find that country men are not good milkers.

3257. If you had a farm where you are producing your own stuff, would you not have a number of workers there, and the workers' wives to milk?—I don't think the workers' wives in our district would attempt to labour except in the harvest time.

3258. Would that be the only objection to producing milk in the country—the difficulty of not being able to obtain the labour; would you put labour as the chief objection?—The cutting of the feeding stuff would be another objection.

3259. You have to carry the feeding in?—No; we fill a hay barn, which holds a hundred tons, in our yard in Cork street, and when it is eaten down by one-third or one-fourth, and when the men are doing nothing in the evening, we get them to load.

3260. Still it has to be carried in?—Yes.

3261. The stuff you cut in is the bulkhead feeding?—Yes, it is the lightest. We never put a ton of hay on our carts. A load of grain would weigh about 50 cwt. or more.

3262. Taking your hay and mangolds, that is very bulky, heavy material. It has to be carried in, and the manure swept out. From that point of view, one would imagine that it would be better for the cows to remain out and eat your milk in?—Although my farm is a very nice place, I don't think you would like to remain there for the winter.

3263. Why?—It is a very bleak place. The building is one of the oldest in the County Dublin. It is over 600 years built. It is very cold in the winter time. I don't keep a motor car, and the driving of horses in and out would be anything but pleasant.

3264. I would rather get you to look at the matter from the point of view of dairymen as a whole, and not from your own personal point of view. Your place might not be pleasant to stay in, but there are many pleasant places in the County of Dublin. You know there are cities where the milk producers have been put out, and the tendency with all these regulations is rather to force them out. What would be the effect in Dublin if that happened?—If we had to do it, we would have to fall into line with the regulations, but you would never make me go out there.

3265. Taking the trade as a whole, what would be the hardship to which the trade would be subjected; would it reduce the quantity of milk supplied to the city?—The expense of erecting steam boilers or chaff cutters would be very heavy.

3266. Have you to erect them now?—No.

3267. Why have you to erect them in the country, if you have not to do it in the town; is it in connection with the production of the crops?—I would not say it was in connection with the production of the crops. Our grazing farm gives us enough to do. I am willing to answer you, but I cannot answer you, as I cannot speak for anyone but myself.

3268. I am not asking you the question because I think that it should be done, but rather to get an argument from your own point of view against a proposition of that kind if it should be made. It is not easy to see why milk should not be as easily produced in the country as in the city. The rates would be less?—Our rates have increased. For a few improvements I made they piled it on.

3269. The CHAIRMAN.—That was done by the Valuation Department?—The rates will go into the Council.

3270. Mr. CAMPBELL.—Would you pay more rates in the town than in the country?—I do not think so, but if you did, you are more conveniently situated, and you can get more value in the city than in any market in Ireland for feeding stuff.

3271. There are bound to be many dairymen who buy hay and straw, and who reside in the country. They can buy the feeding stuff in the country?—Yes, but they might not get the same price. I knew a neighbour, Alfie Macnamara, and he was offered £5 a ton for mow hay, very soft, and he would not give it. He has it lying there still.

3272. I hardly think that is an argument?—You say you can get it as cheap.

3273. Supposing that the dairymen were all outside, and I was producing hay and straw, I would bring it where they were. Would it be a great inconvenience to reside in the country from the point of view of supplying your customers?—It would, because there would be a long way to send milk with gips, and you could not depend on the class of lads that you get in the country. Our lads have nothing to do but deliver milk, and they keep their cows and traps clean. That is all they have to do.

3274. So that one disadvantage, if you lived in the country, would be that you would not have as good an opportunity of keeping your eye on them. From that point of view I can see an argument for town production, but on the other hand, if you had shops you could send the milk to them?—We leave our money with our neighbours. I supply most of the large customers, and I suppose I have one of the best private custom trades in that district.

3275. I think you said that milk was coming from the country at 10d. per gallon?—Yes, Cleere's are charging at the present day 10d. for it. It is not delivered; you have to pay carriage.

3276. Would it pay you to take milk from the country and retail it if you have to pay 10d. a gallon?—It would all depend on the distance that the milk has to come from. Milk from a long distance will not keep, and in many cases customers require it to stand over night. In summer it is impossible to do that. In our district all the dairies go away for the summer.

3277. That, of course, applies to the good customers, but what about the milk that is supplied to the working classes?—There is not nearly as much supplied to them as there should be. If they drank more milk they would be better off.

3278. Do workmen who get 25/- a week use much milk? Have you customers of that kind?—No.

3279. Do you know if any milk purveyors order for that class?—Mr. Young will be here on Tuesday and give you evidence on that.

3280. You referred, Mr. Hatch, to the fact that the milking qualities of the cattle were not quite satisfactory?—Yes.

3281. Have you kept records of your milk yields for many years?—Yes, all our milk cows.

3282. You can tell how much each cow produces?—No, not each cow.

3283. Can you give us from your books an average of the yield?—It is my son that manages the business. I only do the outside work.

3284. Do you think I could get that information?—I do not think you could get the average yield of each cow, but I think my son would facilitate you by giving the bulk of so many cows.

3285. How many years could he go back?—He is only 27 years of age, and he could not go back very far.

3286. I am sorry, because that would be the best proof of the present state of milch cows in the country?—I do not think you could get a single man in Dublin to answer that question.

3287. You are prepared to state positively that the cows are not milking as well as they did twenty-five or thirty years ago?—They are not.

3288. How do you account for that?—They are not the same breed.

3289. Not the same strain?—No, not the same strain.

3290. I am not talking of the cross-pollled Angus and Herefords, but of the Shorthorns—they are not now the same strain?—The Shorthorn is not a good milker.

3291. You think that is in connection with the breeding?—Yes.

3292. Are the cows better looking?—There is an improvement, but unfortunately the English and Scottish buyers come over here on Wednesdays and get into the cattle lairs, and purchase the cattle before we can see them.

3293. Prof. MERRAN.—That is illegal?—Yes, and they are supported by some members of the veterinary staff, because when we wrote to them they did not seem to care about it. You would want to be there from 2 or 3 o'clock in the evening until 8 or 9 o'clock next morning, without leaving it, in order to get the cows.

3294. They are getting the best cows?—They are getting the choicer. And they are able to give more than we are, because they are getting a better price for their milk. They are doing that now more than formerly. Up to forty years ago only King and the Rathens would bring them to the London markets principally. A large number now come in—Scottishmen and Englishmen.

3295. Do you not think that the cattle must be milking well when these people are so anxious to get them?—They could not get them, good or bad, in England. You would be surprised to see cattle bought in Ireland and sold in England as English stock, and getting 25 or 26 more for them than we would get for them here.

3296. At any rate, it is your opinion that the cows you are getting now are not yielding as much milk?—Yes.

3297. You referred to a neighbour of yours whose milk had been sampled and not found up to the standard?—Yes.

3298. Was that morning milk?—No, I think it was evening milk.

3299. Do you have your milk tested often?—Yes, the inspectors stop the carts and take samples in Pembroke, Rathfriland, and the city.

3300. Had you any difficulty yourself?—I was summoned one time for 4 per cent. of added water. I swore that there was nothing done to the milk, and the magistrate believed me and dismissed the case.

3301. What is the difference in quality between the morning and evening milk?—I do not know the exact difference, but there is a great difference in the fat.

3302. You get the same price for both?—Yes.

3303. One is more valuable than the other?—Yes.

3304. In the morning you get your surcharge a quart for 3 per cent., and in the evening the fat is often 4½ per cent., and you only get the same money?—Yes.

3305. Has your trade taken notice of that fact?—They are not an educated class of men. Very many, although well off, are not able to write their own names. They are labourers, pure and simple, and that leaves the trade where it is. I was in Walsley last September at the Congress, and delegates to whom I was speaking were surprised to know that we only got 10d. a gallon for milk in institutions. The lowest price over there is 1/- a gallon; and when I spoke about lady inspectors, they said they wished they had a lady inspector over there and that they would know what to do with her.

3306. Miss McNAMARA.—What would they do with her?—Send her to Skellig.

3307. Mr. CAMPBELL.—When a person of your own standing is summoned for adding water to milk, it is a very serious matter?—Yes.

3308. Do you think the fact that you are liable to be so summoned would prevent men from going into the trade?—Yes.

3309. And does it prevent them, as a matter of fact?—Yes.

3310. Now, the milk that you had tested might very possibly have under 3 per cent. of fat?—It might.

3311. Without any fault of yours?—Yes.

3312. I put the question to Sir Charles Cameron, whether it would not be better to the dairy trade to say that the milk was deficient in fat by whatever percentage it would be, rather than to say that it contained so much added water. Would you prefer to have it stated that the milk was not up to the 3 per cent. standard?—Yes. It would not suit me at all in any public position, or in my private home, to have my name paraded in the Press. In some cases all the evidence for the prosecution is published, while the evidence of the defendant is never given. A full report of the complainant's case, sometimes half a column, is given.

3313. I am satisfied of this, that there is milk produced in Dublin not up to the standard, and this is not due to the dairymen nor to the cows, but to the fact that you are obliged to milk your cows at very unequal periods?—Yes. We commence at 2 o'clock in the morning, and have to start again at 12 o'clock for the evening supply.

3314. Under such conditions it is well proved that the morning milk may be under 8 per cent. and the evening supply correspondingly richer?—Yes. We had some English delegates over here, and I brought them to some yards in the city, and they said that they never saw a herd of cattle to equal the breeds that I showed them in the yards. I may say, too, that our dairies compare favourably with those in every part of England. I have been in all the chief cities and towns of England, and our cowbuds and milkshops are, in a great many instances, superior to what they have over there, except in London; and you have no one here that will go to the expense that they do in London.

3315. Prof. MERRILL.—We were told by a former witness that there would be no difficulty in buying cows subject to the tuberculin test; in other words, that you could go into a market and purchase cows that would be guaranteed not to re-act?—I do not believe that. It is not possible. I would not like to go and ask a man if he would guarantee his cow free of tuberculosis. I know the answer I would get.

3316. The CHAIRMAN.—Would there be any difficulty in subjecting the cows to the test?—There would not be any difficulty, but the people would not allow it. We need not allow the authorities to apply the test.

3317. Mr. CAMPBELL.—Even if you wanted it, there is no convenience in the market to have it done?—No.

3318. Then, supposing these cows were tested at the original farm and the certificate handed on, it might not refer to the same cow at all?—No, that is so.

3319. Have you any difficulty with your milkers in making them wash their hands and put on overalls?—None in life. We supply the overalls and get them washed, and we have canvas knickerbockers. We find no difficulty.

3320. Have you had experience of concrete floors for your cows?—Yes, I have all concrete floors and channels, but they are not what I would like to have.

3321. Have you heard many complaints of the udders going wrong—that they were bruised on the hard concrete?—I have not; we put plenty of straw under them.

3322. Still, at the present time, you could not afford very much straw for the purpose?—We have our own straw.

3323. Mr. O'BRIEN.—You move your cattle to your own farm from your place in Cork street?—Yes; our milkers will be on the farm when the cows are out at grass.

3324. When the cattle are in town the milkers are also in town?—Yes.

3325. And when they go to the country you house them?—Yes.

3326. Is that the way that most of the people deal with their workers?—Yes.

3327. They have accommodation for the milkers?—Yes, that is provided for in the setting of the land. When the weatherman is setting the land, he tells you there is accommodation for the men.

3328. So that there is no difficulty in providing water for the milkers to keep themselves clean?—The men bring over a large can of water for the purpose of cleaning their hands after milking each cow.

3329. Not before milking?—No.

3330. They may wash them before, too?—Yes. After they milk each cow they wash their hands and dry them on the coarse towel. Dr. Browne said here, I think, that they need their hands in the water of a dirty dish. I do not think the healthiest man in the trade would do such a thing.

3331. That was the reason I asked the questions, because we have received statements that when the cows were in the country the milkers very often had no facilities for keeping themselves clean, and slept in a ditch or under a cart?—No.

3332. Prof. MERRILL.—But the accommodation will vary in the different places; some may be more primitive?—Some are not what they should be, but the majority are.

3333. Mr. O'BRIEN.—You said that there was competition about fifteen years ago, from the fact that the creameries sometimes had an overplus of milk and sent it in and sold it at lower prices than you get?—Yes.

3334. What do you mean by creameries having an overplus; do the creameries sell milk?—They do. If we send a whe to Cleves, or others, for milk, we will get it. They advertise in the *Cow-Keepers' Journal*, and you can send a whe, and they will send you a tinned gallon churn of milk.

3335. It is that class of creamery, Cleves for instance, that charge 10½d. a gallon?—Yes, and we have to pay cartage in addition.

3336. They must make a good deal out of it in that case, because in my own district I was offered, as a great inducement, by one of the factory people, that I would get 10½d. a gallon this month, so that if they are selling it at 10½d. a gallon, and you have to pay cartage, they are making something out of it?—Yes. I saw in last Monday's paper an advertisement offering pure new milk delivered twice daily, at 2½d. a quart. That man may have a surplus of milk, but to go on keeping up the supply at that price for the winter months, he could not do so. There are a great many gentlemen, and ladies too, living in the suburbs who keep a cow for their own use and for the use of their friends and acquaintances, and they sell the surplus milk. That is a thing which interferes with us very much.

3337. I imagine that is so very much round Dublin?—Yes.

3338. Miss McNAMARA.—Do you have any special arrangement in very hot weather to cool the milk rapidly on the grazing farm?—I do not think so. We had no means on our farm until we got in the Bathmans water. We have a meter, so that any water we use for cooling the milk is recorded against us. I think it is essential that the milk should be cooled down after milking.

3339. Mr. WILKINSON.—To what temperature do you think it should be cooled?—It would depend on the journey it has to go.

3340. Do you use ice, for instance?—No.

3341. So that the lowest you could get it to would be to the temperature of the water running through the pipe?—Yes.

3342. Lady EVERARD.—What is "cupped" milk?—It is manufactured by Cleves and others. It is separated milk that is condensed, with a very large quantity of molasses in it.

3343. What was the cost of goats in 1887, and what is the price now?—In the summer, in the city, they would be very cheap, and in the winter it would depend on the demand. I have known the price to go up to 1s. 9d. a barrel, but in the summer they were sold for fourpence or fivepence a barrel.

3344. Miss McNAMARA.—Some evidence has been given before the Commission about the typhoid carriers; do you know whether it is customary to make any inquiries from the dairy workers whether they have had typhoid or not, or any transmissible disease?—If there is any sickness in any of the milkers' homes they have to report it to the Medical Officer in the district, and he reports it to Sir Charles Cameron, and he sends out to investigate the matter, and very often sends to the dairies to have the milk destroyed. Milk vessels should not be allowed to be left in the milk shops, inasmuch as a nurse or anyone who may be coming from a washhouse, could come in through the milk shop, and the nurses are likely to carry disease with them. I do not believe that milk vessels should be stored in the shop.

3345. You would not be satisfied with the cleaning of the churns being carried on in the shops?—They should be removed when they were cleaned.

3346. Do you know if any milkers is ever actually asked if he has had typhoid before he is employed?—I cannot say.

3347. I am speaking with regard to typhoid carriers principally?—Yes; it is like washhouses; there are washhouse carriers, too.

3348. The CHAIRMAN.—Scientific witnesses have informed us that it is possible to determine whether or not those engaged in the handling of milk are what is known as typhoid carriers by the application of the Widal test. This test is made by extracting a small quantity of blood, which is subjected to examination subsequently. All the expert witnesses considered the application of the test necessary in order to safeguard the public from the possibility of the distribution of typhoid germs through typhoid carriers. Do you think that if this test was applied it would interfere with the milk trade in the city?—I do not believe it would, and I think that the men would be only too delighted to assist you in any such course. The men in the trade are just as anxious to facilitate this inquiry as the members of the Commission themselves.

3349. I quite understand and appreciate their feeling, but I just want to get your opinion as to whether or not you thought that the application of such a test as this would be regarded as intrusive so far as the workers are concerned, and you do not believe it would?—No.

3350. Do you think, from your own knowledge, that the consumption of milk in Dublin has increased or diminished within your recollection?—I do not think it has increased, inasmuch as there are so many of the cow-leaping establishments closed up.

3351. I am not dealing with that aspect of the question at all, but what I want to get from you is, have you any knowledge as to whether or not more or less milk is drunk per head now than twenty-five years ago?—I believe in my own district there is much more milk sold now and consumed on the premises than formerly.

3352. In your opinion the consumption of milk has rather increased than diminished per head?—Yes.

3353. Your district does not deal with the working population?—No.

3354. And you told us you are not competent to answer the question regarding the consumption of milk by the poorer classes?—Yes.

3355. And that we will get that information from another witness?—Yes, from Mr. Young.

3356. Prof. MERTON.—Have you got any copy of notes drawn up by your Association?—No.

3357. You have no pleasure in your lyrics telling the men what to do which is issued by your Association?—No.

3358. The CHAIRMAN.—Do you think there would be any difficulty about getting the private addresses of all the employees registered, so that it might be possible for the Public Health authorities to visit the homes of these people, and see under what conditions they are living?—I do not think the men themselves would care to give it to you.

3359. I do not suggest that they would agree voluntarily, but if it was made mandatory?—Some of them are very bundle men, and their homes might not be all that could be desired, and they would not care to have them inspected.

3360. You see, the larger interests of the public outside might demand that certain conditions should be observed, and that the workers should be absolutely free from the suspicion of having contagious disease in their homes?—Yes.

3361. From that point of view, do you think there would be any serious opposition to the private addresses being given?—No.

3362. There is a certain amount of opposition to most reforms, but beyond the usual feeling regarding new obligations you do not think there would be any serious objection to this?—No.

3363. Lady EVERARD.—You spoke of the Danish Government giving £5,600 a year to defray the expenses of applying the tuberculin test?—Yes.

3364. What is the procedure?—I believe that application is made to have the tuberculin test applied, and the free use of the veterinary staff and fine tuberculin are given. At the expiration of the twelve months or so, for the best and healthiest herd, a substantial prize is given in money to the owner.

3365. The CHAIRMAN.—That is a Government premium?—Yes, out of the £5,600.

3366. Lady EVERARD.—The owner has not to pay for the test?—No.

3367. What happens if the cow refuses?—I cannot tell you that.

3368. Do you think it would be possible to get information on that point?—I think you will get all the information you require by applying to the Minister of Agriculture.

Mr. CAMPBELL.—You would get it from the Danish representative in London.

The Commission then adjourned until Monday, 8th January, 1912.

ELEVENTH DAY.—MONDAY, 8TH JANUARY, 1912.

The Commissioners met at No. 5, Upper Castle Yard, Dublin.

Present:—P. J. O'NEILL, Esq. (Chairman); Lady EVERARD; Mrs. MARGARET McNEILL; Sir STEWART WOODHOUSE, M.D.; ALICE WILSON, Esq.; DERMOT O'BRIEN, Esq.; J. R. CAMPBELL, Esq. B.Sc.; Professor A. E. MERTON, B.Sc., M.R.C.V.S.

S. W. STRANGE, Esq., Secretary.

The Right Hon. T. W. RUSSELL, M.P., examined.

3369. The CHAIRMAN.—Mr. Russell, you are, as we know, Vice-President of the Department of Agriculture, and you are also a member of the Congested Districts Board?—Yes.

3370. Being familiar with the administration of both those Departments, you are, no doubt, conversant with the economic conditions under which the people live in different parts of the country?—I am.

3371. And reports are presented from time to time by your officers regarding these conditions?—That is so. In addition, of course, I go through the country a great deal myself, and am brought into contact with the people everywhere.

3372. Teaching the question which this Commission has been appointed to inquire into, have specific instances been brought under your observation in which landlords have complained of scarcity of milk?—Yes.

3373. I see that in County Limerick your attention has been rather forcibly drawn to this particular scarcity?—Yes. Will you just allow me to say a word

or two as to the scope of my evidence? Then I will give four illustrations—two rural and two urban—to prove my contention. So far as my evidence is concerned to-day, I divide the community into three classes. First, there is the well-to-do class, who have really no difficulty as regard to milk supply; they have either their own supply in their own homes, or they have abundance of money to provide it in the ordinary way. With that class I have nothing to do. The second class is what we call the dependent class, namely, all the inmates of our public institutions—our workhouses, our asylums, and all our prisons; these have adequate supplies of milk, and the State has taken very great pains to see that the supply is not only adequate, but also that it is up to a certain standard. It is what I may call a protected supply. The third class, which is the class with which I am mainly concerned to-day, is the class which includes the labourers in the country, and also that large class, not always classed as labourers, who are compelled to make ends meet, and who have a pretty stiff fight to

do so. All that class have great difficulties in regard to milk supplies. And now, Mr. Chairman, if you will allow me, I will take Limerick as my first illustration. In the month of August last I was invited by the Limerick County Committee of Agriculture to attend what is called their annual meeting; that is, the meeting, as you know, at which the schemes are prepared for the year. I complied with the request, and on getting to the Courthouse, where the meeting was held, I found a large meeting of the Committee, with Lord Enly in the chair, and between forty and fifty members of the Committee present. The ordinary business was the preparation of the schemes for the year; but before that was entered upon, the Committee resolved what I may call a great depuration of labourers from different parts of the county. There were at least sixty labourers upon the depuration. They were introduced by Mr. Landon, M.P. for the Eastern division of Limerick, in a very moderate speech, in which their grievances were very fully set out. The statements were supported by three labourers in succession, and all the speeches were absolute models of their kind. I mention this to show it was not a riotous body; and a motion was made to comply with their request. The request was to this effect: That the money of the Department allocated for certain purposes, that is, for the cottage prizes scheme, should be diverted from that and should be devoted to the purchase of Kerry cows for the labourers of Limerick. They stated in their addresses that for three or four months of the year it was quite impossible for them, or for people like them, to get milk in the County Limerick; that for these months there was an absolute milk famine, and that for the remaining months of the year the scarcity was so great that they had very great difficulty in securing milk, even in the summer time. That was the substance of their complaint, and they endorsed it with many illustrations and in many ways.

3374. Mr. O'SHEA.—The labourers in different parts of the County were represented?—Yes; one of the speakers was from Croom; I remember the locality because it is a great labour district. A motion was made to comply with the request, and after some trouble it was accepted, and the Committee seemed in very great difficulty. I thought probably they were nervous I should speak early, and I thought, if I may say so, they were very glad when I did speak early. It is a very hard thing for a body like them to refuse a request of that kind, made in the way in which it was made, and with the bold necessities of the case staring them in the face. I said if the scheme was passed by the Committee—I refused to give any opinion upon it, as it was not officially before me—but that if it was passed by the Committee and was sent up to the Department, the Department would deal with it.

3375. The CHAIRMAN.—Had a scheme been elaborated by the depuration?—Yes, I have it here; the proceess of it was practically to arrest the money allocated by the Department, or divert the money.

3376. I understood the purpose, but what I want to know is, did these men themselves actually evolve a scheme which would enable the Committee to comply with their request?—Oh, yes; I will hand it in.

3377. I think it would be rather interesting if you read the main features of it, but before proceeding to that you might inform the Commission what amount of money was devoted to the purpose of cottage prizes which they wished to divert to their scheme?—I had better read the scheme here.

"The following is a draft of the scheme for providing Kerry cows as prizes for the best-kept fifty cottages and plots in the County Limerick, intimated by the Croom Land and Labour Association, and approved of at the Labour Convention held in Limerick, and adopted by the Croom District Council and Board of Guardians. It will be submitted for adoption to the County Limerick Agricultural Committee at their next meeting, when they are considering the scheme for 1912 and 1913:—

"Class 1.—Thirty-two milch Kerry cows for the best-kept thirty-two cottages and plots in the County, held under the Rural District Councils, divided as follows:—Kilmallock Council, six cows; Croom Council, six cows; Limerick No. 1 Council, five cows; Newcastle West Council, five cows; Rathkeale and Glin Council, five cows; Tipperary No. 2 and Mitchelstown No. 2 Councils, five cows. Total, thirty-two cows. Probable cost, £524.

"Class 2.—Eighteen milch Kerry cows for the best-kept eighteen cottages and plots not held under District Councils, valuation not to exceed £4, divided as follows:—Kilmallock, three Kerry cows; Croom, three Kerry cows; Newcastle West, three Kerry cows; Limerick No. 1, three Kerry cows; Rathkeale and Glin, three Kerry cows; Tipperary No. 2 and Mitchelstown No. 2, three Kerry cows. Total, eighteen cows. Probable cost, £130. Entire probable cost of both classes, £654."

They laid down a certain number of conditions, but I do not think it necessary to occupy the time of the Commission reading them, and then they conclude: "As it is admitted by all that labourers in rural districts cannot obtain new milk at any price for themselves and their children, and as the Limerick County Committee are giving for some years past £72 in cash prizes for the best-kept cottages and plots in the County, and a further sum of £200 in cash prizes to small farmers, and as they set aside over £400 for the travelling expenses of Limerick instructors, £180 or so of which was paid out only up to the end of June last, it is confidently hoped that the County Committee will give this very practicable and feasible scheme their whole-hearted assent, and thereby help to provide a long-felt want—new milk for rural labourers."

The proposal substantially was to divert money now spent upon other purposes for the purpose of providing Kerry cows as prizes for the labourers in that County. I said nothing of what I thought of the scheme, because it might come before the Department, and we should have to decide. But I rose, at Lord Enly's request, and explained to the Committee that even at that time the Government had consulted me with regard to this Milk Commission, and I thought it would be premature for the Committee to enter upon any scheme of this kind until we saw what this Commission had to say; that I was perfectly sure the Commission would listen to them; that they would have the opportunity of placing the position of the labourers before the Commission, and of suggesting the scheme to the Commission. I expected the Committee would be willing to accept the proposals of the labourers; but, contrary to my expectations, the labourers themselves received the suggestions very gracefully, and the result was that one of the members, I think from Clonsilla—for part of Tipperary runs into Limerick—moved a resolution that in view of the statement I had made about the Milk Commission, the County Committee postpone the consideration of the proposal, and that a Committee be appointed, consisting half of members of the Agricultural Committee and half of labourers, and that that Committee should give evidence before this Commission when it came to Limerick, and that the scheme should then be dealt with. I must say that one of the labourers of Limerick made an extremely sensible speech in favour of postponing their scheme. I mention this Limerick case in detail, because I am aware that in many places there is a disposition to make light of this scarcity.

3378. The CHAIRMAN.—Was any attempt made by any member of the Limerick Committee to controvert the allegation made by members of the depuration with regard to the scarcity?—I intended to deal with that. I have it on my notes. The statement of the labourers was accepted by every member of the Committee.

3379. Without dissent?—Without dissent, and everyone I spoke to admitted there was a strong case, and that the labourers behaved extremely well. I have no desire to minimise the urgency of this case. I desire to press its urgency upon the Commission, and from the poor man's standpoint it has become a very serious case. Only last month—December—another great depuration of labourers waited upon the Limerick Rural District Council with the same complaint. There were forty members of the Rural District Council present. The case made was just as remarkable as that which the Limerick labourers had made. The introduction to their resolution is to the following effect:—

"That we are of opinion, after long and weary waiting, after the Reports of various Commissions, and the recommendations of eminent authorities again and again, that the time has arrived when something positive and substantial and real shall be done to provide the children of the poor with the first necessity of life—a supply of milk."

This deposition made a more heroic proposal, that the funds of the Department should be arrested outright, and that the Department should consent that the rate should be used for the purpose of providing milk for the labourers. Well, of course, an Agricultural Committee, as you are aware, is not an elected body; the labourers here were before an elected body, and these forty members of the District Council unanimously agreed to the resolution of the labourers, that the funds of the Department now spent upon agricultural purposes generally, wisely or otherwise—I am not arguing that now—should be arrested, and should be spent in giving loans to the people to purchase cows for the supply of milk for what they call in their resolution "the humble homes of the poor." I am here to-day in my official capacity as Vice-President of the Department to say to this Commission that we look upon it as a serious matter that people with such force behind them to divert the Department's funds for this purpose should be made, and that a very serious state of affairs may ensue. I was not present at this deposition, but the Clerk of the Council forwarded a copy of the scheme to the Department, and I desire to impress upon the Commission, not only personally, but also in my official capacity, that we consider this is a grave matter. These are the two rural illustrations I propose to give.

3280. In this particular case to which you refer, no scheme was provided or submitted?—No.

3281. It was simply a drastic demand that the funds which had been allocated should be devoted to this particular purpose?—Yes, and then, seventh proposal was, "That the County Council, should they find legislative sanction is necessary for the suggested change, be requested urgently to reserve the produce of the penny rate in a separate fund, until the result of the Milk Supply Commission now sitting is acted on." You will probably see now why I attend before you in my representative capacity.

3282. What was the date of that?—It was December last.

3283. Before we pass from the Limerick case, I should like to know whether the deposition alleged that the establishment of circumstances at Limerick was in any way responsible for the anxiety to which they referred?—Oh, they gave it as the reason, but I have a great deal to say to that. But undoubtedly the Limerick deposition gave it as the reason for the anxiety, or, perhaps, I may say the probable reason. Their graphic phrase, not a very accurate phrase, was that the milk was scooped up by the circumstances.

3284. It is expensive?—Yes, but you cannot scoop up milk.

3285. Oh, that depends?—May I pass now to the urban districts. I think I have said enough to show the Commission the condition in the rural districts.

3286. Has the protest made by the Limerick District Council been conveyed to the Committee of Agriculture in Kerry?—I have no knowledge of that, but it has been conveyed direct to the Department.

3287. What I wish to know is this—whether the Agricultural Committee in Kerry expressed the same sympathetic feeling towards the scheme as was manifested at Limerick?—I have no intelligence from the County Committee in Kerry at all.

3288. It is possible they did not meet since?—This was at the Rural District Council meeting.

The CHAIRMAN.—I quite follow.

3289. Lady EVELING.—The Chairman has asked the question I wished to ask. The labourers, instead of applying to the proper quarter, which is the Committee of Agriculture, applied to the Rural District Council, which, I take it, had no authority whatever over any of the Department's funds?—None whatever. Of course, they were asked when the resolution was adopted to hold up the funds. The Rural District Council, of course, have some control in their district over the penny rate, and they asked the County Council to hold up the penny rate until the Milk Commission places the matter in some shape or another.

3290. I take it, it is the County Council that strikes the rate of the Committee of Agriculture?—Oh, yes; but I think the District Councils have authority in the different rural districts.

3291. The CHAIRMAN.—Of course, it is quite right to assume that the District Councils represent the local

feeling, and that the County Council acknowledges their right to speak on behalf of the labouring interest?—Of course, you know that, Mr. Chairman, much better than I do. I am perfectly certain that if the Rural District Councils in a county combined upon a resolution like that the County Council would be powerless to oppose it. The Rural Councils have representatives upon the County Councils, and they could enforce their views through their representatives.

3292. Lady EVELING.—At any rate, they went to the Rural Council, and not to the Agricultural Committee. I should have thought that, as in Limerick, they would have asked an expression of opinion from the Agricultural Committee. I conclude there are a great many more District Councils in Kerry than Limerick?—Oh, yes.

3293. This Council was only representative of Limerick?—Yes.

3294. Mr. CAMPBELL.—Suppose these labourers come before us, and, no doubt, they will, with their scheme, may we assume that it can be combated with?—I have no objection to assume that. If the Limerick scheme comes before me, and the Council approved it, I should decline.

3295. Legally you could not sanction it?—No.

3296. It is not one of the purposes of the Act?—No; it is not one of the purposes of the Act. The CHAIRMAN.—It is as well the ground should be cleared.

3297. Mr. CAMPBELL.—Something might be done, but it is quite clear our money cannot be given for that purpose?—I think the Limerick deposition went on grounds that our rate should deal with other matters. The object of the Limerick deposition was simply to give presents of Kerry cows to labourers for keeping them plots well. I believe that to be outside our duty.

3298. Was anything said whether they could keep Kerry cows if they got them, or was that left to the Department?—Everything was left to the Department.

3299. Mr. O'BRIEN.—I gather that the money that was to be diverted in the case of Limerick for the purpose of giving Kerry cows was already devoted to the purpose of giving prizes, but I suppose not to the same amount?—Oh, no; they demanded a much larger sum.

The CHAIRMAN.—Mr. Russell gave the figures.

3300. Mr. O'BRIEN.—He mentioned the sum of £350; was that more than the amount already given for prizes?—Yes.

3301. Because I suppose if it was the same amount the Department could sanction the giving of specific prizes, or anything of that sort?—Mr. Campbell asked me a specific question on that point. Frankly, I prefer to deal with the Limerick scheme when it comes before us. To say to people like these what can be done and what cannot be done in a case like this is very difficult, and perhaps an unwise thing. I told the members of the Committee I would not take the responsibility of referring them from deciding their own business there, but if it came before the Department I could not sanction it.

3302. Mr. CAMPBELL.—But now it comes before us, before it comes before the Department, and if we make recommendations we may be wasting our time?—If you want my opinion, I tell the Commission frankly I do not think it is a thing that should be done. In the first place it is not easy to meet a famine of milk by giving thirty-two cows to a place like Limerick.

3303. The CHAIRMAN.—That would not solve the difficulty?—Not at all. I mentioned these two cases, not because I approve of one or other of the proposals—I will deal with them when they come before me—but because they offered evidence of the character of this evil and the grievance under which these poor people live.

3304. Mr. O'BRIEN.—Can you suggest how the evil could be met?—I am going in my evidence to suggest how it can be met if the Commission will allow me to level my own road.

The CHAIRMAN.—We only want to ask questions directly bearing on the particular point Mr. Russell is referring to at the moment; otherwise they may be overlooked.

3403. Mr. WILSON.—Are these two cases you have given, Mr. Russell, samples of others?—Yes, samples.

3404. Samples of other complaints that reach you?—Yes, I am quite sure these proposals of the laborers are going to run over the whole of the South of Ireland, where they are organized, and that the want exists all over Ireland.

3405. Are they samples of complaints that reach the Department?—They are samples of complaints that reach me.

3406. There are many more?—Oh, yes.

3407. The CHAIRMAN.—Will you now proceed to the urban instances?—The first instance I give is in the West; the second is in the King's County, in the Midlands. A fortnight ago I visited Tallamore to attend a special meeting of the County Committee of Agriculture, not summoned for the purpose of the milk supply, but for general purposes. Before I went down I met an old friend of mine in Dublin, Mr. David Sherlock. He visited me at the hotel, and amongst the things he directed my attention to was the scarcity of milk in Tallamore. He told me that things, instead of improving, were rather going from bad to worse; that the school children of milk had to be stopped, and he gave me other instances of real hardship to the poor. Limerick is a creamery district. There are no creameries in Tallamore at all.

3410. Therefore, the scarcity arises from another cause?—Yes. I am making no attack upon creameries; there are no creameries around Tallamore, or comparatively few. He told me that things were so bad, and people were looking on it so seriously that some of the people were thinking of taking land in the immediate vicinity of the town and starting a dairy farm for the supply of milk to the town. He mentioned the Workhouse field, which is not now used as it was used in the past. When I went to the Committee I made inquiries of some of the people at the meeting, and they quite admitted that milk was very scarce. I am going to make a proposal on the Tallamore case and in regard to the urban districts, but they will come in in due time. The second urban district of which I have personal experience is that of Athlery, in the West of Ireland. I had a good deal to do with Athlery. It is not a place that one would hold up as the Garden of Ireland; we have had a very great deal of trouble there.

3411. Mr. CAMPBELL.—Now happily over?—I am going to bring that out too. Shortly after I took office as Vice-President I visited Athlery, and the complaint there was that the townspeople wanted land. One speaker upon a deputation of laborers and shopkeepers thus graphically put the condition of Athlery. He said: "Athlery is an island surrounded by grass lands." He said it was impossible to get either milk or vegetables in Athlery, and that the children in Athlery were being largely fed upon black coffee and condensed milk. It was very graphic, but substantially it was true. I am happy to say that with the aid of the Estates Commissioners we got the grass lands broken up, and they are now very largely in the possession of the townspeople—shopkeepers and inhabitant householders—and the difficulty has been so far removed; but nothing could be worse than the state of the town in regard to the milk supply. Now, I have given the cases of two rural and two urban districts. I selected these four; they are familiar to me personally, and I submit, knowing as I do that this trouble exists all over the country, and feeling perfectly certain that the laborers are going to make themselves felt in the matter, and felt in the way I describe in these two rural cases, that the grievance is a very terrible one and a very real one for those poor people; and I think the State is entitled to step in when they receive the information which they will receive from this Commission, and try to find a way out.

3412. The CHAIRMAN.—Can you tell us if the difficulty in Athlery has been solved by the distribution of land out up by the Estates Commissioners?—Yes; and let me say as regards Athlery—I state what everybody knows—that in many respects it is not a very pleasant place, but rather a very difficult place for anyone having any responsibility to deal with; but I am happy to tell the Commission that I think the trouble is over there, and the Department are considering now, and have practically decided, such is the improvement in the place, to begin to put up buildings that were erected on that land.

3413. Would you be good enough to tell the Commission what scheme has been adopted for the purpose of solving the difficulty to which you have referred in Athlery? Is it a scheme applicable to other places similarly situated, and is it a scheme that could be applied to the further development of the Congested Districts work?—The Congested Districts Board does not come into Athlery at all.

3414. The Estates Commissioners, I mean?—What I did was this. When these people came to me with their troubles I satisfied myself that they were suffering intolerable grievances, and I said to the deputation that waited upon me, "If things can be kept quiet here until Parliament rises—I was then in Parliament—I shall undertake to do my best to bring down the Estates Commissioners to see you place." Fortunately, the land all round Athlery had all passed into the hands of the Estates Commissioners. The result was they came down, and a scheme was made which enabled the shopkeepers and householders to buy their houses and shops, and also to break up the land into small portions, to give the people, in addition to their houses and shops.

3415. Mr. O'BRIEN.—These plots are worked and farmed by the shopkeepers and inhabitants of the town?—Yes.

3416. Mr. CAMPBELL.—I think the assumption is very permissible, that other towns similarly situated in the district might be similarly dealt with?—Yes.

3417. The CHAIRMAN.—I wanted to see how far it was possible to apply the principle carried out in Athlery and other districts similarly situated, and how far it may be possible for the existing machinery of the Government to deal with this question in these districts?—The machinery is complete; it can be done all over Ireland. I have pointed out to the Commission that fortunately the land all round Athlery came into the hands of the Estates Commissioners. It had to be parcelled out to somebody, and manifestly it was better to parcel it out to the people who wanted it. That was the state of facts I found in Athlery, and the machinery that produced that result could, I have no doubt, be applied in other places.

3418. Mr. STUART WILSON.—The conditions that prevail in Athlery are much the same as those that prevail under the town park system?—Oh, no! Town parks are rented. This land in Athlery is now owned by the people, and they have got a very good bargain.

3419. They have it on perpetuity?—Yes, as an interest-free, subject, of course, to an annual payment for a period of years to the State.

3420. Mr. O'BRIEN.—I suppose there are a great many of the smaller towns throughout Ireland where the land actually up against the walls of the town is owned by farmers who bought out under the Estates Commissioners, and it would be more difficult, I suppose, in these cases to get hold of the land?—It was not difficult in Athlery. I must not be taken as expressing opinions now upon the land question. I have very strong opinions upon it.

3421. I was doubtful if it was proposed that the solution of the problem in that case might be applied all over Ireland.

Mr. CAMPBELL.—In places where similar circumstances prevailed?—If you wait until I come to my proposals we shall see.

3422. The CHAIRMAN.—These were the conditions under which I asked my question. Manifestly it would apply in every instance of towns similarly situated in Athlery?

Mr. CAMPBELL.—You are going to deal, Mr. Russell, with other cases where the land is not in the hands of the Congested Districts Board?—Yes. Now I think I have dealt with demonstrations as to the scarcity of milk.

3423. The CHAIRMAN.—You have given two cases of rural districts and two of urban?—Yes, and I have given these as types from my own knowledge. Now I come to the general question of scarcity. All over the country people have no hesitation in saying that the milk all goes to the creameries, and that therefore the creameries are the cause. I dissent. The creameries, whether we like them or not, have come to stay. I have one great grudge against the creameries and the creamery system. It has abolished butter-milk, which was a pleasant beverage to most people and a very wholesome article of food to a very large number of the Irish people. I have a grudge towards the system that practically abolished that article of

food, but where creameries are not better factories, regulated or unregulated, I have nothing to say, save that they have conferred a great service upon Ireland in reforming the name of Irish butter. As for milk, they are not, and they never were, intended to be retail milk dairies. They were started originally for the purpose of purchasing the milk of the farmers in a district, separating the cream from that milk by centrifugal force, and turning it into butter. That was the original idea of the creamery system; that was the idea upon which the farmers entered into it, and upon which money was put into it. No one, therefore, has a right to complain that the creameries do not sell milk. They have a right to sell milk, and they are selling it in a certain way; they have a right to sell anything, and many of them sell a great many articles besides milk. They have a right to carry out the original intention of the creameries, that is, the separating of the cream from the milk and making butter; they have a right to sell milk if they choose to do so; they have a right to sell butter if they choose—anything seems a needle to an ear—and nobody has a right to complain, or ought to complain. But if anybody thinks that the creameries are supplying milk now to meet this great grievance and this great evil, he is mistaken. They are not, and I do not see how they ever can become, milkshops to meet that difficulty.

3424. THE CHAIRMAN.—In your opinion, we shall have to look beyond the creameries at all events for a solution?—Yes, sir. I do not know that we need wonder at this society. Let me ask the Commission to see how the case stands. Here in the last twenty years we have had a totally new industry started, which, in my judgment, has been a great advantage to the country. We have had a totally new industry, which now takes about half the milk production of the country and turns it into butter. That was bound to have a great influence upon the supply of milk in the homes of the people. But other cases are at work, they are at work quickly and almost remorselessly, so that it is only those that have to go into the facts and the figures that are able to realize what they really mean. We are now exporting milk—I use the word in the general sense, including all kinds of milk—in the extent, I think, of £223,500 sterling annually. The exact figure for the last year was £223,354 sterling of exports of milk. I do not see why we should wonder at the scarcity of the supply of milk for the poor people of the country when we have started a great industry, and, I repeat, a very blessed industry, which takes up half the milk production in the creameries for the manufacture of butter, and when you are busy at the same time and exporting it every year with an export of milk to the extent of £223,354 last year. I say I use the word milk in the general sense. I mean condensed milk, separated milk, whole milk, cream. I do not think we need wonder at the scarcity, and nobody is so foolish as to think of stopping the export of milk. Nobody dreams of lessening the butter exports, whether it is creamery butter or home-made butter, we are all anxious to increase it. But all that means, unless there is something to replace it, scarcity of milk in the homes of the people. I was in Castlereagh district the other day, and I mention this to show you why it is difficult in itself to come to get milk. It is a common state of affairs. We take the greatest pains to provide a supply of articles whose domestic value is not quite so well established as that of milk, but there are no pains taken to supply milk. This cottage in Castlereagh was one of a number of cottages upon new plots. The woman of the cottage, an extremely intelligent woman, was doing remarkably well; she had eight milk cows. When she came from the bags of flour, she had not milked cows, but, as she called them, two heifers; she was making 25s. per week on eggs at the time. It was a great pleasure to see that little farm, and to think what the family was now, compared with what it had been two years ago. I said to her, "What do you do with the milk, I suppose you get a very good price for it in Castlereagh?" She replied, "I used to send it to Castlereagh, but the shopkeepers there had to sell it in small quantities, and they did not get paid in cash, and they do not like the trouble of collecting the money." "What do you do with it?" I said. "Oh," she answered, "I have a contract with the workhouse now." And here I had to moralise as best I could. The poor people in

Castlereagh had trouble to get the milk, but the purpose in the workhouse had no trouble. So I wish to tell the Commissioners frankly that we are alongside of times in which we are to have trouble, and we must find a way out of these difficulties. I should like also to touch upon another point, as to the cause of the scarcity. I do not want to say anything disrespectful either of farmers or labourers. I have spent the best part of a long life, in and out of Parliament, in endeavouring to improve the condition of both, but I cannot help seeing, and saying, that the relations in many parts of the country between farmers and labourers are not of a character to induce the farmer to take very much trouble about the milk supply of the labourer. Independence usually costs a good deal, and my view is that the independence happily secured by the labourer—his cottage, his higher wages, everything that has tended to benefit the position of the labourer—has had a corresponding influence, at all events upon some farmers, to induce them to leave the labourer to fend for himself, to use a Scottish word, and to get milk or anything else just as he likes. I think the labourers have to look after themselves now more than they had to do, for milk was part and parcel of their wages formerly. I do not press that further, but in trying to find the causes of the scarcity of milk among the labourers I write that down as one. How far that is the case I am not prepared to say, but that it is the case I am perfectly certain, and I am certain that the labourers find more difficulty now in getting milk than when they were upon the farm. Now, before I come to the suggested remedies, may I say a word or two upon the question of cleanliness, about which I have had a great deal of trouble. I say "I have had a great deal of trouble," because, as Mr. Campbell knows, since he presented his report on the dairy industry this work of dealing with the milk and butter questions has entirely taken upon me. I think the best thing I can do to show you how far it goes is to hand in a list of cases. This is a return from the period, 1st January, 1909, to the 23rd September, 1909, showing the condition of the milk delivered at a number of creameries when the supply was examined by one of the Department's Inspectors in dairying on the occasion of visits made under the "Scheme for encouraging improvements in the management of creameries and auxiliary creameries." I have read the evidence given recently by Mr. Paolo Wilson, who made it very clear to the Commission that one of the great difficulties which creamery owners had to contend with was that if one creamery refused unless milk another creamery was only too glad to get the custom, and the whole thing went round in a vicious circle, and the milkman milk got disposed of somehow. I think Mr. Paolo Wilson must have convinced the Commission of the extent of that difficulty. Here is a Table * which he did not put in, which I think ought

* Return for the period, 1st January, 1909, to 23rd September, 1909, showing the condition of the milk delivered at a number of creameries, when the supply was examined by one of the Department's Inspectors in Dairying (eight in number), on the occasion of visits made under the "Scheme for encouraging improvements in the management of creameries and auxiliary creameries."

1.	2.
Percentage of supplies delivering clean milk in clean vessels	Number of visits on which the milk supply was found in condition referred to in Col. 1.
per cent.	
800	93
95 to 99	150
90 to 95	141
80 to 90	100
70 to 80	123
60 to 70	66
50 to 60	26
40 to 50	18
30 to 40	6
20 to 30	4
10 to 20	1
0 to 10	1
	801

If the vessel containing the milk, or the lid of the vessel, or the milk was dirty the milk is classed as "unclean."

to go upon the record. There is first the percentage of supplies delivered clean milk in clean vessels, two distinct things, and second, the number of visits on which the milk supply was found in the condition referred to in column one of the Table. There were 804 different visits paid, not necessarily to different creameries, but visits paid at different times. On the occasion of ninety-three visits the percentage was 100—the milk was clean and pure, on the occasion of one hundred and fifty visits, 95 to 99 per cent. of the milk was clean and pure; on the occasion of one hundred and thirty-one visits, 90 to 95 per cent. was clean and pure; on the occasion of one hundred and fifty visits, 80 to 90 per cent. was clean and pure; on the occasion of one hundred and thirty-three visits, 70 to 80 per cent. was clean and pure, on the occasion of sixty-eight visits, 60 to 70 per cent. was clean and pure; on the occasion of thirty-six visits, 50 to 90 per cent. was clean; on the occasion of eighteen visits, 40 to 50 per cent. was clean; on the occasion of six visits, 20 to 30 per cent. was clean; on the occasion of four visits, 20 to 30 per cent. was clean; on the occasion of one visit, 10 to 20 per cent. was clean; and on the occasion of one visit the milk was wholly dirty. I hand in this Table, as was promised. I think it is important, in view of what will take place in Parliament next session, that we should have it upon your records. I said I have great difficulties. Dirty, unclean milk—I am not using my own word "dirty," because it is not the language of the experts—but unclean milk produces unclean butter, and my difficulty has arisen there. If the farmers who supply milk to creameries were to churn their own milk they would simply use a hair sieve. This might almost altogether be altered; but there is a great deal of carelessness all over the country, as that table shows, and as I have learned in regard to butter. I learned in Cork, a very few weeks ago, that one of the largest contractors for butter to an English firm of biscuit manufacturers was withdrawn because of the lumps and the dirt that were in the butter. Biscuits are not made of lumps and dirt, and you cannot wonder the contract was withdrawn in such circumstances. I am glad to say the contract has since been restored, but the butter was challenged, as I say, and the contract withdrawn for a while.

3425. The CHAIRMAN.—That was for creamery butter?—No, I do not say that—(after a pause)—I think not, it was in the South of Ireland. I think I can undertake to say it was not creamery butter.

3426. It is as well to make that clear?—I think the creameries won't find one atom of complaint against my evidence to-day. I say this was not creamery butter. I took some little time to think of it, because there might have been creameries involved, but I do not think there were. I have difficulties in this way. One butter merchant wrote to me the other day upon the word "unclean" in the Butter Bill which I propose to introduce next Session, and said it ought to apply to the whole of the United Kingdom, that if the word is put in and is to apply to Ireland, and not to Great Britain, the Irish butter trade would be ruined. I think that is probably the most extraordinary assertion that any man ever made, and I hope and trust my colleagues in the Irish representation in Parliament will not reject the Butter Bill upon any such ground. I think it will immensely benefit Irish butter if it is stated it is clean and pure, regardless of what the butter is in Great Britain. What is the view I take, and the view I intend to urge upon Parliament, and that is the view my Irish colleagues will take, I am certain. That view is held, and widely held. I do not think I could have carried my Butter Bill as far as I have carried it if I inserted a clause as to enabling the Department to inspect Irish creameries for the purpose of cleanliness. I know I could not; but here we are alongside this question of supplying milk in an unclean condition to creameries; the creameries set to blame; but if one creamery refuses it other creameries will use it, and the other may shut up. I think I have solved that difficulty. I have here an approved copy of the Bill I hope to introduce early next Session, and I have dealt with unclean milk in it.

3427. Prof. MERTON.—By inspection?—Let me just finish about unclean milk. We have powers of inspection now. Clause XI. of the proposed Bill reads:—"Any person who knowingly"—let me say I hate that word in an Act of Parliament; it is inserted by

the draftsman; it is simply a way to defaulters to get out of any Act of Parliament, and I will do my best to get it left out.—"any person who (a) knowingly places milk, which is unclean or tainted, or is contained in a dirty vessel for use in a creamery, or in separating station, or other place in Ireland"—I may say we have dropped in this Bill the words "auxiliary creameries," and inserted the words "cream separating station";—where milk supplied by several suppliers is used for the manufacture of butter, cream, or other dairy produce for sale; or (b) knowingly exposes for use or uses in any such place as aforesaid any milk which is unclean or tainted, or is contained in a dirty vessel; or (c) having knowledge of the facts, refuses to furnish the officer of the Department with the name and address of the person supplying for use in any such place as aforesaid any milk which is found by the aforesaid officer on his inspection to be unclean or tainted, or to be contained in a dirty vessel, shall be guilty of an offence under this Act." And then the penalty is set out. I have had great difficulty in convincing some of my colleagues—not my colleagues in the Department; I have other colleagues elsewhere—that people have not a right to buy dirty milk if they like. The old doctrine of the liberty of the subject is still alive, though it has got land lumps everywhere, and I hold that that clause, upon the evidence which the Department possesses, is necessary. I hold that both the man who supplies and the man who receives it should be brought within the purview of the Bill and the Act, and I hope the Commission will see their way, if they report before this legislation takes place, at all events, to help us in securing that the milk supply should be clean and wholesome.

3428. Professor MERTON.—Can we have a copy of that Bill?—No, it is only in draft.

3429. Is it on sale?—Oh, no. There is great demand for Bills to be published before they are produced in Parliament.

3430. The CHAIRMAN.—Just at the moment there seems to be an unlimited demand?—I must take the ground my colleagues in a higher station take, but I think the Commission ought to know the Department is seized with the gravity of this offence, and feel that it ought to be put down. It is the great logical defence of legislation of that kind that the seller of unclean milk to creameries may spoil the whole day's work in the creamery.

3431. Mr. O'BRIEN.—Of course, this is cleanliness in the ordinary acceptance of the word. It does not touch the question of milk that might possibly bring disease?—If you will allow me to say so, I would point out that obviously I am not concerned with health or disease, but comes under the Local Government Board, and they are quite competent to do their own work.

3432. Professor MERTON.—Mr. Campbell does not think that?—That is the great difficulty in legislating upon this question. You have to draw the line between health legislation and agriculture; it is a very difficult line to draw. Would you allow me to say one another word touching this matter. I have read very carefully and critically the evidence given here on separated milk as reported in the Press, and I read it with great regret. With the official report of the evidence I almost wholly concur, but the evidence was largely as regards health—the health of children—and not very much in regard to cattle. Professor Thompson, whom I have consulted in this matter, was reported in the Irish Times to have answered a question in such a manner as to leave the impression that this was an article of a more or less nutritive character. When I came to read his evidence on the official report I found his reply was that it might be possible to make separated milk part of a nutritive diet—a very different thing. I felt the difficulty, because it is a serious matter that an unqualified statement as to the value of separated milk as an article of diet should go across the country on the authority of a great scientist, and I saw Professor Thompson, who told me that he said nothing of the kind, and that the report as published in the Press was an incomplete report. I have got the official evidence, and I find that Professor Thompson said in reply, I think, to Mr. Wilson, that it was possible to make this article a nutritive article of food, but in answer to Miss McNeill, who pressed him upon the question of its value for children, he said—and this was not reported at all—

It was not food for children at all, and that any obstruction he had to make were confined to adults who could get fats in food in other ways.

3433. The CHAIRMAN.—Quite so.—I do not think the last word has been said about separated milk and I carry in my mind a very uneasy feeling about the question at the present moment. Some six months ago I read a letter quoted in the *Irish Press*, or partly quoted, from the Morning Post, which was written by Lord Ashdown. Lord Ashdown is a great breeder of cattle, and if you will allow me to make a suggestion, after I have done stating what I have to say about Lord Ashdown, it would be that if this Commission goes to the West they ought to examine Lord Ashdown; because, I think, coming from him as a great breeder of cattle, his statement is a trustworthy one. I do not know what the letter was written in support of, but he said that "without visiting to reflect in the slightest degree upon the creamery system as Sir Harcourt Plunkett's work"—I am quoting the letter—"he had ceased to buy breeding stock in creamery districts." I think that letter a very grave one. I submitted it to my colleagues in the Department, they looked upon it as the résumé of a very old controversy—there were controversies before I went to the Department. I thought I had brought them all there, but evidently there were serious controversies before I went there, and they thought this the résumé of one of them. The Commission will excuse my suggesting they should examine Lord Ashdown, because, coming from a man of his authority upon that question, it is a grave and serious statement to make. It may be borne out or not, but what I read into that was this—I take the production of separated milk, what goes on at the creameries, is this? The milk is sent in, it is put into the separator, the cream is extracted, and all the newer machinery of the creameries is more and more designed to extract the last atom of fat. The milk is put into the extractor, it is turned out as separated milk, and returned to the farmer. Well, now, the theory upon which the farmer ought to use that for young cattle is that he ought not to use it alone, but that he ought to add fat to it to supply the want created by the extractor. That stands to reason. Fat, after all, is necessary for young cattle, and if you send back an article for food purposes that has no fat, you must supply the want of it. There are happily-go-lucky farmers in Ireland. I am glad to say they are scarce, and that the farmer's profession in Ireland is becoming more and more a scientific profession, but there are happy-go-lucky farmers, and especially among the small ones. Supposing they do not use fat, and that the sensible farmers use calf meal—I see Professor Campbell looking at me; he and I know what calf meal is, he knows what I have had to do in the courts of this country to bust those second-rate out of the country who are paining off things upon the people of this country which are not what they pretend to be. I call them second-rate, because surely all these men who profess the adulteration of food, for either wine or brandy, and send it from England or Scotland or other places into this country to deceive our people, are second-rate. Supposing the farmers use this calf meal, and supposing it is not what it pretends to be, and in the Department we know of only too many such cases where it is not, what becomes of the poor cattle? I say the last word has not yet been said upon separated milk as regards cattle. I notice evidence was given as regards this commodity as an article of food to be sold in cities and towns, and that some portion of it was sold. Well, I hope it won't stay into our cities and towns. I am told it is better than tea. I drink very little tea; I have no very high opinion of it, and I think the poor people of this country are compelled by the absence of milk to drink far too much of it. But supposing it is sent into the slums of our cities, into the wretched shops where what is supposed to be milk is sold, a lot of the poor children in the slums will be worse off than ever, and I hope we shall not see this as an article of commerce in our towns. I hope that the farmers will be able to use it up, and that the Department and every other organisation will impress upon them that they must on no account give it by itself to their cattle. I think it right to say that owing to the false impression which has gone through the country by incomplete re-

ports in the Press on a very important subject, the facts ought to be stated categorically and plainly.

3434. The CHAIRMAN.—Did Lord Ashdown, in the letter to which you refer, state the reason why he abandoned buying cattle in the creamery districts, or did he only leave an inference to be drawn?—He left the inference to be drawn, he said he did not object to the creamery system.

3435. He simply said his practice had changed?—Yes; that is so; and now, sir, I think I have practically exhausted what I have to say, except to suggest the remedies.

3436. You purpose directing attention to the people made in the scheme outlined by Father Barry in the district in which he lives?—Yes; that will come in after the remedies. Now, turning first to what I call municipal areas, not meaning by that great cities, because I leave out of my evidence and remarks altogether places such as Dublin and Belfast, and places surrounded by dairy farms, where there is no difficulty in winter or summer in getting milk. These towns will be any severity of milk in Dublin, but I take municipal areas, such as the urban county districts I have mentioned. I see really no difficulty in the local authorities, when requested—I do not wish to make it compulsory, but when requested—establishing milk farms and milk supply depots for the towns. That, to my mind, would meet the difficulty, so far as these small towns are concerned. The local authorities could purchase a sufficient number of cows; they could take a certain quantity of land, and they could enter upon the dairy business, under, of course, all the restrictions of the Dairies and Cow Sheds Order, and everything else, and they could set up a milk supply of that kind without any difficulty. Whether it is a matter that would require legislation I do not know. I do not think it would come any way. I think it would be for the Local Government Board. All I can say is, I should be delighted to assist any scheme of the kind. I think it is feasible, and it would meet the difficulty in the urban districts, but no more.

3437. The CHAIRMAN.—Would you give the local authority the right to acquire land compulsorily for that purpose?—Yes; I am not afraid of compulsion at all.

3438. I want to make that clear, because I think a permissive scheme would be imperative?—I make no difficulty about compulsion, and I do not think there would be any difficulty in Parliament.

3439. That is the assumption?—Yes, but there would be plenty of land to be had without compulsion at the same time. I would give compulsion in order to have the land acquired in a proper place.

3440. Mr. CAMPBELL.—Would you not buy the milk from the farmers?—Yes.

3441. Then, if the municipal authorities started depots, and bought the milk from the farmers, there would be no objection to that?—The farmer has to purchase it himself now.

3442. I understand that the objection the farmer has to selling milk to the labourers is that he does not want to go to the trouble of collecting the pence, and he does not want to trust his men to go round selling the milk; whereas if he sold to the municipal dairies they would give him a cheque for the full amount of the milk supplied?—The milk is not in the country. If you are to meet this demand for an adequate milk supply you must vastly increase the number of milk cows, and I say a municipal milk supply would do that. Evidently the milk is now sent to the creameries, so that it is not in contact for the people. If it is sent to the creameries, I have no desire to divert it. I want to see the butter trade increased by leaps and bounds. If you are not to divert it from the creameries, you must get your supply somewhere else. I am not wedded to this scheme, but in thinking it out I wish to state I see no difficulty in municipal authorities—urban local authorities—when requested by their constituents, setting up milk depots and setting up the whole machinery of town dairies, and supplying the people with milk.

3443. The CHAIRMAN.—For the moment you limit yourself to urban districts.—Yes, that is my limit.

3444. Mr. CAMPBELL.—But there are voluntary associations?

The CHAIRMAN.—I will ask a question on that later on.

Mr. Russell.—That brings me at once to the rural districts, because, as I have said, I have omitted the cities. I have made the suggestion as regards these urban district councils. Now I come to the rural district councils. I was greatly interested in reading Father Barry's evidence from the official report. Of course, the idea of Commons is as old as English history, and Commons, even in Acts of Parliament, in England, are jealously protected and guarded from infringement. They are, however, greatly infringed upon, but still they are jealously guarded by the people. I think the Commons idea is a very splendid one if we had a Father Barry in every district; there is no reason why it should not be tried and pressed wherever there are men of Father Barry's stamp, and, of course, there are many of them. But it is not easy to introduce new ideas of that kind into Ireland, and if they are introduced it is not easy to prevent quarrels and difficulties arising. I am quite prepared to admit that there are many districts where Father Barry's theory might be worked out, and it would be best to limit it to rural areas; and anything I say must not be taken as detracting one iota of that.

3448. The CHAIRMAN.—Had you an opportunity of reading the official copy of Father Barry's evidence; because, unfortunately, the published report of it was very incomplete?—I have the official note here. I spent part of yesterday (Sunday) reading it, and a very good sermon it was. I am afraid it is a scheme that could not be carried out all over Ireland. There are places with Father Barry's where it will work. The difficulty in all these cases is—let me give, without introducing a word of controversy, an illustration of the difficulty—take the agricultural credit bank. It works admirably wherever you have a local man, the priest or the rector, or anybody else, who will give himself up to it and work it. Without that help, difficulties arise. My idea is that wherever you have Father Barry's you could carry out the Commons plan, and with advantage, and it is the best solution of the question.

3449. The CHAIRMAN.—Of course this solution would not be universal, because it would be only possible to carry it out where land is being divided at the moment?—Yes, but land is being divided in a great many places.

3450. But a scheme such as this would not be considered as meeting the difficulty in every instance?—I am quite certain as to that, but so far as my comment upon Father Barry's evidence goes, it is entirely feasible. I think his is a good scheme wherever it can be worked, and my best of the possibilities of its working is the presence of Father Barry.

3451. I think it is your opinion that no general scheme can be devised which would be applicable to every circumstance that may arise over the entire country?—That is so.

3452. And that if recommendations are made by this Commission, dealing with the question, they will have to be made in a series—the one applicable to one set of conditions, and the other applicable to another set?—I quite agree. I do not know whether I could apply the same principle to rural district councils that I could to urban district councils.

3453. I am very interested in this portion.—I am not sure, but at the same time it might also be possible. If the Council received a requisition where a road went exists, and where there was no possible way of supplying that want, to put the Rural District Council in the same position as the Urban District Council, and to make it a Rural District Council supply.

3454. I am afraid the difficulties would be enormously increased in the case of Rural District Councils, because of the wider area and the scattered population with which they would have to deal.—I agree. Then, what are we driven to in the rural districts? We are driven to goats. We must either have a large fresh supply of milk cows or goats. There is a good deal of difficulty about goats. First of all, you must get your goats. Now I understood that goats will have to be got from the Continent, or, at any rate, to a large extent.

3455. The approved goat?—Very well; the approved goat. There is no great Continental country where

foot and mouth disease has not taken up its permanent residence. I should have something to say to the entry of goats from any country of that kind, and I consider that no minister responsible for the agriculture of this country should run even the slightest risk by the importation of goats from countries where foot and mouth disease has almost a permanent residence. That is the first thing I have to say; that if goats come in from the Continent, they will have to come in with a guarantee and warranty, both from abroad and here at home, that will satisfy the Agricultural Department, which is responsible. We have kept foot and mouth disease out of this country for twenty-seven years, and I think that is a great achievement, Mr. Chairman.

3456. The CHAIRMAN.—I agree.—The farmers, although they look as about five old boots, even they know perfectly well what we have done in this direction. That is the first difficulty.

3457. Mr. CAMPBELL.—Is it not the case that the goat cannot be introduced without legislation?—I do not know that; I have so much legislation in my mind at the present moment, I have had no time to think of that.

3458. I think I am correct in saying that no animals—no ruminants—can possibly be admitted except for zoological gardens?—I am rather surprised at that.

3459. Mr. O'HARA.—Or for immediate slaughter?

Mr. CAMPBELL.—Of course.—That would have to be considered.

3460. Professor MOTTAN.—That particular Act affects goats.—If you have got your goats to meet this deficiency in the milk supply, the goats will have to be cared for. I had a most interesting letter the other day from a lady representing that the goat was the most innocent animal that ever lived, and that if she was allowed to go across the fields and country-side she will, it is said, produce three quarts of milk per day. I know she would, but I am not going to be responsible to the farmers of Ireland for agriculture if goats are to be allowed to wander all over the countryside at their sweet will. There is no more destructive animal than a goat; there is not a farmer in the country who won't tell you that, and farmers object to goats wandering over their fields, eating everything. You may have to get an Act of Parliament to get your goats. I will help to get that willingly, but the goat has to be cared for. People imagine a goat can stand anything; it cannot; it is an extremely delicate animal.

3461. The CHAIRMAN.—He does not like a day of this kind, for instance? (The weather was very inclement).—A day of this kind is very serious for him. We all know that driving through the country, one sees goats in ditches with very little to eat, and frightened out of their lives by motor cars. I think it is a most shocking thing to see these animals tethered in ditches, and almost frightened to death. You have got to get the goats, and to see that they are cared for before they supply this deficiency. I am not sure that the caring of them is not the more difficult. People in this country do not attach any importance to the goat; they seem to think they can live anywhere and in any way, and go anywhere and everywhere. I am entirely in favour of getting goats introduced into this country as part of the scheme or remedy, but we must see that the goats are properly cared for, for one thing, and that the farmers or labourers who use them—I suppose it would be the labourers—see prepared to house them properly, and to see them properly fed. With these conditions fulfilled, I think the goats could come in, at all events as part of the general remedy.

3462. Mr. CAMPBELL.—Would you be prepared to support a law to keep goats off the roads?—No, I would not; I do not know where the poor animals would then go to.

3463. To the labourers' plots?—No, I would not.

3464. Then you cannot help us in that?—No.

3465. Is it not desirable to keep all animals off the roads?—That is a counsel of perfection.

3466. You are quite aware that farmers have a great antipathy to the goat?—Yes.

3467. And if the goat is to do any good, it must be better fed and cared for; but it is very doubtful whether it would be possible for an educational authority to get them to do what you want without a little coercion?—For the goats?

3466. No; the farmers and labourers.—My answer to that is you are not in Parliament.

3466. There are several measures of that kind; there is the measure, for instance, in connection with weeds, which the farmers welcome.—I passed that myself.

3467. The farmers welcomed it.—It is pleasant to hear it.

3468. Is it not possible also they would welcome some measure to stop the depredations of goats?—I am certain the farmers would support me in getting the goats off the roadside or anywhere else, but that is not the point; it is the labourers that are concerned. Perhaps I answered you too abruptly just now. If I am asked to consider the question of keeping goats off the roadside I will do it, but I have expressed this particular feeling at the present time.

3469. If goats are to be properly cared for, and properly fed, they must be taken off the roadside?—Take me upon the question of goats as being perfectly friendly, but I see difficulties. With these difficulties fairly met I think the Department ought to enter upon the thing seriously with a view to meeting this deficiency in the milk supply, and so far as I am concerned I shall do my best, but I do not conceal from myself the difficulties.

3470. The Chairman.—Before passing from the question of the remedy for supplying the deficiency in rural districts, you admit the scheme you have outlined yourself would be rather difficult to put into operation in the rural districts?—Yes.

3471. I would be glad to know your opinion upon a scheme based somewhat upon the lines I propose to indicate to you now. Supposing for a moment that the rural district council had sufficient powers to enable them to enter into a contract with a farmer as their district to deliver milk at an indicated centre of distribution, guaranteeing a certain output at a fixed price, which would be paid by the District Council as the administrative authority, do you think that that would meet the difficulty?—Well, I have not considered it, but as you have stated it, I think it is a possible scheme. I do not think it impossible to work such a scheme, but, in fact, I have not had time to consider it, and I dislike giving abrupt opinions. I think that proposal of yours bears upon the face of it elements of a working possibility.

3472. A possibility?—Yes, I think so. Of course, rural district councils would have to take it up, not as a perfunctory way, but as a matter of absolute duty.

3473. I would make it imperative; and, furthermore, in order to ensure that the milk would reach the poorest section of the population, some contribution ought to be made by the State, or other funds, in order to cheapen the price to the consumer?—I object also, rather to that. I object to all such subventions of that kind. No one should cheapen my food.

3474. Mr. Chairman.—But you feed the pauper?—We give it to him. I object to pauperize people.

3475. Why not so near children that they would be kept out of the poorhouses?—No, my answer to that is that the employer should pay wages that would enable the labourer to live as a man ought to live. I have the greatest objection to any subvention in aid of the food of the people. Some people propose to tax, and others propose to give a subvention to cheapen food; I am against both.

3476. The Chairman.—This Commission has evidence before it that in certain districts milk is not used for food to the extent the medical officers think necessary for the development of the youth of the country, and that the poor people cannot afford to buy milk at current commercial prices. How would you propose to deal with conditions like that?—Well, I could say a good deal upon it. Probably people who cannot afford to buy milk can afford to buy other things not quite so good. I think you would get into endless difficulties if you begin to make proposals that are contrary, let me say, to economic science, if you like. There are people, of course, who cannot afford to buy anything; the border line between poverty and pauperism is very sharp and narrow, and people are constantly crossing over. But if I were an economist I would consent to nothing that would pauperize people, leading them to believe that they would get from the State part and parcel of their daily bread; if the thing comes to that, the country is hopeless and lost.

3477. There is another aspect of the milk question which this Commission has to consider, and on which

we would like to have your views; that is the question in regard to the inspection of dairies, milk depots, and creameries. We have had evidence already from those engaged in the trade that they believe it is unfair to have an Order drafted for the purpose of ensuring cleanliness, and the production of milk under hygienic conditions rapidly enforced in one district, whereas it is only slowly enforced in another, and perhaps not in operation at all in a third, while the producers in the district where the Order is rapidly enforced have to compete commercially with the other districts not subjected to the same rigorous conditions of inspection. Do you think it would be desirable that an Order of this kind should be made uniform, and its administration be controlled by a central authority?—Well, I must ask for a sub-division of that question. First of all, I desire to know whether you are referring to the Local Government Board Order with regard to milk shops and dairies, or to the many statutes which provide for the inspection of milk and butter from the health standpoint.

3478. I am referring to every statute and regulation which affects the production and the cost of milk?—Well, as regards the Local Government Board Milk Shops Order, there are very strong complaints that that Order applies to a farmer who supplies his milk to a creamery, but it does not apply to a farmer who makes his butter at home. Of course, the obvious reason of that is the Order is framed on the basis of public health. Milk and butter are not quite the same thing. The Local Government Board takes cognizance of the danger of a milk supply to creameries where butter is manufactured; it does not take cognizance in the same way where the farmer does not supply his milk to be mixed with the supplies of others, but who makes the butter at home. The danger to the public health is not considered to be so great in that way as in the other. I am not defending it, I am only making a statement of fact, and I know the supporters to creameries feel aggrieved that they are subject to an Order that their neighbours who do not supply milk to creameries are not under. That is quite true, but I am not prepared to enter upon that.

3479. I was going to ask whether or not you think that that is a reasonable ground of complaint, but, of course, if you don't wish to answer I don't press it.—Well, it takes me into a country I don't press it.—I would rather not travel. I would like to say of dairies, speaking personally, not officially—for I do not want to commit the Department to matters of which it has no official cognizance; but, speaking personally, I should like to see all places where milk is produced and sold subject to the most rigorous sense of the law. If you come to the general laws dealing with the purity of milk, and all that sort of thing, I can only express in the strongest manner my objection at once to the state of the law and to its administration. Only a few weeks ago a Head Constable in a Southern town—I do not like to give the name of the town—brought an old woman before the mayor of the town at the police court. He gave evidence that the case in which her milk was being conveyed was so filthy that when he took off the lid he took off the dirt with his finger. He gave that evidence before the mayor of a great Irish borough. The mayor was greatly shocked, and wanted to know what the Department was doing; he encouraged the Head Constable for bringing that case by firing the lady a shilling, and delivered an eloquent rebuke against the indifference of the Department in Ireland when that was alleged. Of course the Department had no power—none whatever; but he had the power, and that was the way he exercised it. Take another case.—A great Irish county refused to prosecute the makers of butter, no matter what the quantity of water that was in that butter. The local authority frankly refused to prosecute. The Department prosecuted; we got a case, sent down our own inspectors, and we ourselves prosecuted. There was twenty-six per cent. of water in the butter; the fine was one penny—a great inducement for the Department to go down to the country touring as a prosecutor. In another county the same thing happened. Take any place; take Dublin. There were two cases here in Dublin last week, in which fines of 10s. and 21s. were inflicted. What is the use of that? Why should people go to the trouble of all this? Ten shillings fine on illegal milk vendors in this country? It is no use, and that fine is inflicted not by your ordinary magistrates at Petty Sessions Courts. Why, the Department took the greatest pains nine months ago to get at an elaborate system of fraud

in the sale of margarine for butter. I do not know whether that comes within your reference or not; it does concern milk in a certain way; but you asked a question on administration. We went to the greatest possible trouble. Our inspectors were all well known, and it was not a bit of us sending them in. We wrote to a gentleman living in a distant part of Ireland to make a postal arrangement for the supply of 10 lbs. of Irish butter every week to his residence. This gentleman sent the butter to the Department each week as the arrangement reached him. The first consignment was right; the second consignment was butter; the third was unadulterated margarine, and so on. We made our case, which came before a police magistrate. The solicitor for the margarine man, seeing the magistrate was going against him, raised a point of law which he ought to have raised at the beginning, namely, whether the defendant elected to be tried before a court of summary jurisdiction, or whether he elected to go before a jury. He selected a jury; the case in the police courts was stopped. The case came before a jury; the gentleman from the distant part of Ireland came up and gave evidence like a man. The judge of the superior court who tried the case complimented the Department, and said everyone in this case had done his duty, and he would do his. A verdict of guilty was returned, and the judge proposed to give him three months, but took time to think of it over night. In the interval it was found the man's heart was very bad, and in the morning he was let off with a fine. Well, now, I say that that is robbery of the poor, because it is robbery of the poor that is the offence. I do not care who the judge is, whether he be a judge of the supreme court, or magistrate at petty sessions, or mayor in a borough in an Irish town—I say he commits at the robbery of the poorest part of the population if he does not properly punish such an offence. If you sell water instead of milk to the poorest of the poor in the slums of Dublin for the children, if you supply water instead of butter, I say it is as much robbery as if you siphoned their wages from them. So much so that the way the law is administered in the courts of this country is nothing less than a scandal. Nothing will cure the offence but imprisonment, and the moment that is done the offence will cease.

3480. Mr. O'BRIEN.—Imprisonment of the head, or the principal person?—Of a number of persons.

3481. The CHAIRMAN.—Speaking for myself, and, I am inclined to think, for all the members of the Commission, I was surprised to find from the official witness of the Department, that you had no statutory authority to enter premises for the purpose of making an inspection, and that your officer can only act through the good-will and pleasure of the creamery manager?—That is so, and we take powers in the Dairying Bill to remedy it.

3482. I am extremely pleased to hear it, because I think the present system is extremely unsatisfactory, and does not lend to effective supervision.—Perhaps I might quote the clause which I think will remedy what is admittedly a defect. Clause 13 is as follows:—“Any officer of the Department shall have power to enter at all reasonable times:—

(a) Any premises regulated under this Act, and for the purposes of this Act, any premises which are or are required to be registered under the Sale of Food and Drugs Acts, 1875 to 1907, and

(b) Any other premises in Ireland at which milk supplied by several suppliers is used for the manufacture of butter, cream, or other articles of dairy produce for sale, or is commingled with a view to such use, and to take samples of any butter, cream, or milk, or any articles capable of being used in the manufacture of dairy produce.”

I think that remedies the defect in the law.

3483. Professor MERRAN.—May I suggest that you should use the word “licensed” instead of “registered” there?—That is not the word in the Bill; we simply compel creameries to register.

3484. If they were licensed you could ensure that certain regulations which you made were carried into effect before they are licensed?—I think that as what it comes to, but I may state quite candidly that like all Bills where there are interests at stake, the Bill is not the best; it is only good, and it is better to get the good than to strive ineffectively for the best: that is exactly how this stands.

3485. Mr. CAMPBELL.—The licences you refer to, Professor Merran, are in relation, I take it, to new premises, and no one could start new premises until they obtained a licence?

Professor MERRAN.—Yes, and until they satisfied the Department.

Mr. BRIDGES.—That is provided for in the Bill; it is practically a licensing Bill in that sense. I think the Bill will meet that demand.

3486. Mr. CAMPBELL.—Of course, the Department's inspectors have power to go into the creameries under, I think, the Food and Drugs Act, for the purpose of ascertaining whether the premises are connected with a margarine factory, and so on; but they have no power to go in to see to their cleanliness.

The CHAIRMAN.—I certainly was rather disappointed and shocked to find that the Department's officers had no such statutory right, and obviously at the very moment when it is desirable the premises should be inspected, the manager has the right to close the door in the Inspector's face?—It is altogether wrong, but there it is.

3487. Lady EVELAND.—Perhaps Mr. Russell might not be aware that all witnesses examined here unanimously agreed that licences would be very much better than registration for milk shops?

The CHAIRMAN.—I did not put that question to Mr. Russell, but, as he occupies a very prominent position, I should be very glad to have his views on the question. It was suggested by the very first witness; the Local Government Board witness said he believed it would lead to much more efficient administration of the Dairies and Milk Shops Order if licensing, rather than registration, was made a statutory duty, and not a single witness that has appeared before the Commission since, representing any interest, has expressed an opinion at variance to that view. I should be glad to know yours?—I cannot say I am adverse to that view, but the Dairy Committee has sat and reported on the Bill, and advised registration, and that all creameries should be registered.

3488. Mr. CAMPBELL.—You are thinking of the creameries?—Yes. I am thinking of creameries, because the difficulties are as to entering creameries; that is where this question arises, and I think it meets the purpose of licensing if the Department is to register creameries, before creameries come into play.

3489. The CHAIRMAN.—I am looking at it in the broader sense, and referring to dairies, milk shops, and other places where milk is vendible?—I have not the slightest doubt licensing is the proper course to follow in regard to those places, because if they were licensed you would have them completely in your power at any time. You could stop the licence; if they were inconvertible you could stop the licence.

3490. Furthermore, it would ensure that previous to allowing men to embark upon the trade, certain personal elements of character should be present to satisfy the licensing authority that they were suitable persons?—I suppose they would then be in the position of the men who want to sell drink, and would require an excellent moral character, and various qualifications of that kind before entering upon such occupation?

3491. Lady EVELAND.—I want to ask a question in reference to an earlier part of your evidence. What is the size of the farms round Athlone?—Large, very large. Of course there are parts of Galway where they are small.

3492. I mean the distributed lands?—Those that have been divided up?

3493. Lady EVELAND.—Yes.—My recollection is that shopkeepers and householders received quantities of land suitable for their needs. They were out of one particular size, but were mapped out in small holdings of four, five, eight and ten acres, that is my recollection. I did not care much after I got the thing settled by the Estates Commissioners. I made no investigation. I got them down, and left the details to be carried out by those interested.

3494. You spoke of goats being destructive, but don't you think that goats are the best animals for the labourer. He could graze his goat on half an acre of his plot, and grow his food upon the other half acre?—If you ask me, can a labourer get his half acre to a better purpose, I think he can. At the same time the goat is a very valuable animal, subject to the conditions I have laid down. If you get all the conditions, the labourer's half acre would help to keep him.

3995. Mr. O'Brien.—The labourers have an acre?—Sometimes they have an acre and sometimes half an acre.

3996. The Chairman.—They don't have an acre in every case?

Mr. O'Brien.—Generally they have an acre. One-third of an acre would feed a goat.

Miss McNeill.—Of course they could get grass from outside.

Lady Evershed.—I was about to say that goats are tolerated by the farmers in a great many cases, and they are allowed to graze upon the lands?—Don't take me as being hostile to the goat. If they come they will have to come under conditions that will ensure their success.

3997. Mr. Campbell.—At the present time, under the Dairies and Cow Sheds Order, inspections are made by the veterinary surgeons employed by various Rural District Councils. Now, it has been pointed out to us that in a great many cases the persons who appoint these veterinary surgeons are the persons to be inspected, and that the administration is, therefore, lax in a great many cases; it is further pointed out that there is no co-ordination of the ideas of these various surgeons. One man does little, another much, and so on; and to obviate all that it is suggested that all this work should be put into the hands of a Central Department—the Department of Agriculture?—I may answer the first part of the question in language which you will understand, Mr. Campbell:—

"When still the warning balance holds,
It's rarely right adjusted."

And where a man has to act under an order, and has authority over those enforcing it, a condition of affairs arises that does not tend to good government. That is all the length I go. Take any meaning out of it you like.

3998. I know the interpretation of the phrase very well.—If the work goes to a State Department—and, of course, that means the Agricultural Department—we never refuse anything.

3999. The Chairman.—Not even work?—Not even work, provided the necessary funds come along with the work, but I object to have it transferred from one public department to another without a corresponding endorsement for the purpose of the work. I think we have a right to stand out against that.

3999. Mr. Campbell.—It is urged that it would tend to better results?—I have no doubt about the value of co-ordination.

3999. You are a member of the Congested Districts Board?—I am.

3999. They are stripping out land, making new buildings, giving the farmers dwelling-houses, and so on. What are they doing with regard to out-offices?—It is quite true I am a member of the Congested Districts Board, and I attend the meetings of that Board, at least I have attended there in the past with fair regularity, so you know, but it would be a mistake to say that because I am a member of the Board, and am familiar with the general work that goes on before the Board, I know as much about the details of the Congested Districts Board as I do about the details of the Department. It is quite impossible. This matter has been raised—I have raised it—that the out-offices in connection with the houses erected by the Congested Districts Board, advocates, perhaps, for the present time, are not adequate to what we may reasonably expect in the future. I have heard that questioned, but I am not prepared to pronounce upon it. I mentioned it to Mr. Dowd, and he thought rather that the buildings were better than could be devised by anyone else, and there was an end of it. I am inclined to agree that that fault would be against them.

3999. The buildings put up don't meet the regulations of the Local Government Board; the case you mentioned yourself of the woman who supplied milk to the workhouse shows that?—Yes.

3999. I am aware of the case of another new holding created by the Estates Commissioners. It is absolutely unsuited for the purpose of keeping match cows, and would not pass. I had the veterinary inspector before me who happened to be one of the Department's men, and he said to me, "What can I do? That man is a member of the Council that employs me?"—In regard to the point Mr. Campbell has raised about these new holdings, and the adequacy of the buildings, let me point out that both

in the case of the Estates Commissioners and the Congested Districts Board, but more so in the case of the Estates Commissioners, they consider their duty to be to put a new man upon a new holding and to give him a dwelling-house, and perhaps a small sum of money for other necessary purposes. I always thought they considered their duty as defined by the State to be to do so and then. Out-houses, cowsheds, cart sheds, and all these things were left for the man himself to put up as he goes along. They put him on the land, and said to him, "You must now scrape for yourself." I think you will find that is so. What I really am trying to do for these people is this—I think they ought to have loans of money, not only for stock, but also to put up these out-houses and to put up gates and things of that kind. If they want a shed for their cow, if they want a hen-house, they want a little capital after the bare necessities of the land and the dwelling, and I think, as you are not establishing a departmental committee for the express purpose of devising the plans, we have not any right to call upon the State, which has undertaken a very large matter in giving the land and the dwelling-houses. That is an enormous thing for the State to do; it is not too much in all the circumstances, but it is a great thing, and I think the next might reasonably be left to those who get the land, and the question of these out-offices is not for a State Department. I think the State's duty was done when it put the tenants upon the land and gave them a decent dwelling-house for the first time, and gave them a fair chance to start. That is for the Congested Districts Board, and it is not the function of the Department to try and reform these people on sound lines so get proper out-houses and all the other waste which a holding of that kind requires.

3999. The Chairman.—What I complain of is that—that to my certain knowledge the Congested Districts Board purports to give to some of those persons whom they have placed upon the land buildings to be utilized upon those holdings for keeping cows, and that these buildings do not conform to the regulations laid down by another Government Department whose duty it is to provide such regulations, and what I submit is this—that it ought not to be left to men of this kind, embarking upon a new enterprise, to reflect upon the administration of established Government Departments by condemning the work carried out by them under their own supervision?—I should be very sorry to condemn work of the kind done on the ground that it is not sufficient. I have knowledge of the enormous difficulty in the way of doing what is being done, and therefore I would have a kind eye for a good deal left undone; but if the Local Government Board has laid down conditions for out-houses they should be complied with.

3999. That is exactly the point. They are dealing with the prime necessity of public health, in the first instance?—I do not like to apologise for anything, but you can easily understand that as a member of the Congested Districts Board, and, from my position as a member representing the Government, having slight knowledge of the detailed working of the Board, it is very difficult for me to give an answer; but I go this length, and say that if the Local Government Board, for good and adequate reasons, have laid down conditions for out-houses in connection with these buildings, they should be complied with.

3999. Mr. Campbell.—You do not suggest that this Commission should be situated there farmers in the congested districts, where they are supplying the milk, should have different treatment from farmers in any other district?—Certainly not.

3999. The Chairman.—They must come under all the Orders?—Yes, but I desire to be most guarded in what I say about the Congested Districts Board.

3999. Mr. Campbell.—My point would be met if what is done was begun in such a way that in future it could be completed to the satisfaction of the Local Government Board?—I have great sympathy with that.

3999. But if you begin your foundations wrong, you cannot easily alter them afterwards?—Most of the members of the Commission know the horrible conditions things were in when the Congested Districts Board commenced work, and very little in the way of improvements was welcome. I think things are getting better than they were.

3999. Mr. Wilson.—I think you would agree with the statement that the milk supply problem, treated as

a whole in Ireland, splits itself up into five pestilently water-tight compartments; one, the problem of the big cities, such as Dublin and Belfast, which you have expressly excluded, but where, so far as the evidence submitted goes, shows that the scarcity of milk among the poorer people is just as bad as it is anywhere else?—I do not agree.

3512. Evidence has been given that amongst the poorer people the scarcity is very bad indeed—I do not think scarcity exists to any large extent in those cities. Let us take Dublin, for example. The dairy farmers round about Dublin have always a plentiful supply of milk. They have abundance of cows.

3513. Mr. Wilson—I am speaking of the poorer people—I am coming to that. The poorer people have their grievances, but I do not think scarcity of milk is one of them. There is no difficulty among people whom I may describe as well-to-do people, and so far as the poorer people are concerned, I have lived fifty years in Dublin and there is never any real scarcity of milk. The Variety is always there. There is no room for scarcity where there are such large numbers of dairy farmers to supply the city, and I do not think there is any scarcity.

3514. Turning it into a question as between scarcity and Variety water, there is not much difference?—There are worse things; it is better than separated milk.

3515. You exclude the large districts?—Yes.

3516. Well, now, the second compartment would be the beef ranch areas?—Yes; but there is, of course, a grievance to the beef ranches.

3517. But the grievance is itself difficult?—Yes.

3518. And these are different from the congested areas, where the whole country is like West Donegal?—Yes.

3519. Different sets of questions have to be answered?—Yes.

3520. And these again differ from Tallanmore and Athlery?—Yes.

3521. We have really five distinct problems to look into?—I divided it into three, but I do not object to your classification.

3522. Leaving the Slane out of the question, and turning to the beef ranches, such as Father Barry dealt with, for instance, Galway and Clare, and speaking now of the country people living in the middle of one of these vast ranches—there is no milk, and Father Barry has suggested one form of solution for that particular problem, and quite have been suggested as another. Is there a third solution for those living in the beef ranches?—Yes; the Chairman has made a suggestion which I think a possibly workable one.

3523. For a rural public supply?—Yes. I think that is what he meant, and I think his suggestion will bear a great deal of thinking out, and probably will meet the difficulty in many cases. No one really will meet the difficulty in all cases.

3524. That is the reason I am trying to get others?—Yes.

3525. Take another fact. The Women's National Health Association has done a lot to focus public opinion on this question. Would it be possible for a public authority to work in connection with such a body if it organised a demand, for instance, for milk which exists here and there, but which is not properly linked up; and if someone who can see a little farther than the demand of to-day and to-morrow is willing to organise that demand, do you see any difficulty in carrying out an arrangement of that kind?—I should be inclined to utilise everything of the kind.

3526. That would be useful assistance?—Yes, and I think the Local Authority would require it, and would require all the help they could get.

3527. Take the third compartment, that is the creamery areas. I should like to be quite clear about this question of the butter trade as it affects the milk trade. In the first place, the butter export trade, I remember you saying, has been steadily decreasing for the last three or four years. I have taken the figures which I have here from the Department's Schedule?—I quoted them roughly.

3528. Yes, £886,000 in round figures?—It is down £700,000 in five years.

3529. It has gone down continuously and steadily in five years?—Yes, steadily and continuously.

3530. At the same time, the number of milch cattle has not decreased in proportion?—No, but I think there is an answer to that. There is an increase in milch cattle, and there is an increase in the young calves to be sold.

3531. Mr. O'Hanrahan—You mean by that that the farmers are giving more milk to the calves?—I think they are. There are more of them, and that would save a certain proportion of the milk.

3532. The Chairman—Which would make for better production?

Mr. Wilson—I am not trying to make reference to any controversial point. For the purpose of this Commission we have got to leave that out of the question?—Certainly, and I have tried to do it. I have not said a word about the creameries.

3533. There is this curious anomaly; the butter exports are going steadily down, and in all probability they will continue to go down still further, and at the same time the number of cows supplying milk and the butter trade is not going down?—That is so. And what is still more curious is the increase in imports, which have gone up in the same period by something like £150,000 sterling for foreign butter.

3534. Broadly speaking, your idea is that this country is distinctly improving, is so the upper gradient?—Yes, very distinctly. I and five years ago we were rounding the corner. We are fully round the corner now, and anyone in the Department compelled to watch the evidence again and again would see beyond yes or may that in almost everything that affects the welfare of the people, this country is making, not only steady, but rapid progress. I wish to give that distinctly as my opinion.

3535. Let us apply that to the butter trade. Would it not be natural in these circumstances, seeing the improvement in the welfare of the poorer people, that they would use more butter?—Yes.

3536. If you see many other things not made in Ireland with the figures going up?—Yes, it is an inference; there is no evidence. The difference between that theory and the report of the Department is—we are giving facts and figures, you are attempting—excuse the word, I am not using it in an offensive sense—you are attempting to prove we eat our butter instead of exporting it. I have no objection to anyone attempting to prove anything in this world, but you have here no evidence that you can offer. We have no figures, not for years, in regard to our internal trade. Not have Ireland, England, nor Scotland. We deal with imports and exports. You attempt to convince me that we took a certain turn five years ago, and began to eat our butter and other people's butter, but before you can prove that that is so, I require the evidence. I give you the evidence of the decreased export; I want evidence as to the alleged fact that we eat the butter instead of exporting it.

Mr. Wilson—The internal evidence is not available.

3537. Prof. Murrain—There is no evidence it is made?—There is no evidence that you can rely upon that it is made. You may get evidence that a certain creamery is producing larger quantities this year than the year before, but without that comes the figures that other creameries are producing less. All I want to impress upon Mr. Wilson is, he may have the theory which is a very pleasant one, that we are eating our butter instead of exporting it, but I caution him he must get proof that that is so.

3538. Mr. Wilson—In the absence of absolute proof we trust our common sense, and we must do our best with the available figures, and these figures show that milch cows are not on the decrease, whereas the export of butter is?—Quite so.

3539. Would you object to the same double argument in regard to poultry and the decrease in the export of eggs and feathers?—That is not a thing that has gone on for years. The export of eggs goes up one year, and down another. Butter has gone down steadily for five years.

3540. Egg exports, taking the Department's figures, have gone down from 6,600,000 to 6,200,000; I take these figures from the Department's own returns, except there be a misprint?—Supposing I accept them, would the decreased export of eggs prove that we were eating our own eggs?

3541. Mr. Wilson—But including the fact that the hen population has gone up?—You are on the same ground there.

3542. Professor Murrain—Eating your manufactured?—Yes, of course; that would be the same thing. Are these pounds to which these figures refer, Mr. Wilson?

3543. Mr. Wilson—No, hundredweights. All I am trying to get at is this: Is there more or less milk in the country than six or seven years ago?—I quite agree with you. I said in reply to Mr. O'Brien, there are more young cattle to be fed.

3544. Is that all?—That is one way of accounting for the milk, and, as the Chairman says, they are the better of it if that is where the part of the increased supply goes. On the general question let me say—I know the point you are driving at—it is a perfectly dis-
 3545. Mr. WILSON.—They go down steadily enough.
 3546. Certainly in bulk.—Well, the position you seek to take up is this, you don't question the decrease?
 3547. Not by any means.—But you say it is caused, or rather—
 3548. I suggest.—Or, rather, if you are wise, you would say it may be caused owing to the better condition of the people; that they are eating more butter, more eggs, and more milk.
 3549. Considerably more?—Yes. Well, all I can say is this, I am quite prepared to draw inferences of any kind, but I am not prepared to build legislation upon them. I must have facts, and you have no facts to go upon. I have facts that you have not, and besides I have facts that would give a very different reason for the butter exports going down.
 3550. Well, let us have them. My point is that the bulk of available milk in the country at the present time has not decreased. Mr. Russell has said there are no figures, and in the absence of such facts one has to reason what is the cause. Mr. Russell says that he has other facts dealing with the bulk of the butter available in the country?—I don't. I think this discussion is controversial, but I have no objection to either aspect of it. The real point here is this: it is one that caused a good deal of attention; the butter exports have been going down, but I am not at all sure this is within the terms of reference of the warrant.
 3551. The CHAIRMAN.—I should be very sorry indeed to limit the discretion of any member of the Commission to discuss any question which in his mind has a distinct bearing on the purpose for which the Commission has been called into existence?—I think it has a bearing; my difficulty is that it will involve us in controversy.
 3552. I am quite certain Mr. Wilson is not desirous of leading the Commission, or any witness, into any controversial matter unless he thinks it is useful for the purposes of the matters which the Commission is investigating?—If Mr. Wilson thinks that any opinion that I can give as to the reason why butter exports have gone down would be useful to the Commission, I shall give it to him.
 3553. Mr. WILSON.—I think it would have a distinct bearing.
 The CHAIRMAN.—I am rather inclined to think it would, because after all it is perfectly clear from the evidence and returns that the number of milk producing animals in the country has not decreased, while the quantity of butter exported has undoubtedly been reduced, and one is curious to know to what purpose the milk produced is now being devoted, in view of the fact that it cannot be used for the manufacture of butter?—Very well, then; to go to the root of the matter. The Commission will bear in mind that just as the export of our butter diminished the import of foreign butter has gone up. Now, one reason for this diminished export of butter—and for this purpose I must say creamery butter—in what is taking place largely of late years is regard to the manufacture of the article. Creameries, as I said in the beginning of my evidence, were established for the purpose of buying milk from the farmers, separating it from the cream, and making butter. To a very large extent, and certainly not altogether, creameries have become butter factories, that is to say, they have imported foreign butter. It is not questioned. Evidence was given before the Dairy Industry Commission that they imported foreign butter. In quite recent years they have gone out into the market and bought the ordinary farmer's butter. The Department has got information of this

frequently. These butters are blended and are worked up, and are sent to England as creamery butter; I have had scores of cases where the labels have been sent to me to see whether these labels would pass the test of the law and I have always refused to answer. All these things are better shown by illustration. A case was brought to me in the Department about three months ago. There were several letters from butter dealers in the market stating that a certain creamery owner was buying butter in the markets and giving a price for it that the ordinary butter dealers could not give; that he was taking this butter to the creamery, blending it and re-working it, and sending it as the first Irish creamery butter to the English markets. I ordered a presentation. I sent down an Inspector. In the meantime, hearing that, he registered the creamery as a butter factory, but registered too late for the purpose of the presentation. After the piece was registered as a factory, the Inspector went to see the process going on. Farmers' butter was being taken and worked up and turned into creamery butter; he saw the labels put upon it, "First Irish Creamery Butter," and he forwarded these labels to me at the Department; he sent a copy of the labels on five or six packets containing it. I ordered a presentation. Well, now, that is a simple case; because there are a number of these creameries under the stress of circumstances which in the past few years have turned their creameries into butter factories to a large extent, and in so far as they use foreign butter; and Mr. Anderson, in his evidence before the Dairy Commission, stated it was carried on to a very large extent, and that he was in favour of putting it down. So far as they use foreign butter and send it out labelled as creamery butter to the English markets, they are not only breaking the law, but they are also doing grave injury to creamery butter, and if you desire to have the real reason, in my opinion, why the export of butter has decreased, it is because the creameries have been according to the English markets an article which is not creamery butter at all. The real difficulty, and the real thing which has fixed this Bill upon me is this: We have presented; there is no definition of creamery butter on the statute book; you cannot get a Court to convict, because of the absence of a statutory definition. I have given a statutory definition here, and there has been so much difficulty placed in the way of that Bill by vested interests as was possible to place in the way. If you want my own view as to what largely contributes to the decrease of butter exports, it is that an article is being manufactured in a great many creameries in Ireland that is not Irish creamery butter; it is being sent to the English market as Irish creamery butter, and butter merchants have come to the conclusion that if they wish for Danish butter, or Siberian butter, or Colonial butter, they can get it by other ways than one Ireland.
 3554. Mr. WILSON.—That is the very point of view. It suggests there is more milk and butter left in the country than there is, which from any point of view as a Milk Commission is entirely satisfactory?—I am only accounting for the diminished figures.
 3555. I think, probably, we have now spent time enough on that point. You remarked some time ago that owing to the small bills and the bad debts, the shopkeepers had difficulty in selling milk?—I don't think I said anything about bad debts or small bills. I spoke about selling in pennyworths and halfpenny-worths.
 3556. Yes, but perhaps the small bills and bad debts lie at the root of the difficulty?—They probably lie at the chief difficulty in regard to the selling of milk in towns.
 3557. Would that be at the root of the difficulty in the creamery arena, where there is admittedly plenty of milk on sale, either by the farmers or the creameries?—I cannot imagine the creameries selling milk.
 3558. Supposing the Women's National Health Association, or that other non-controversial body, the United Irish Women, in certain areas, buy from the farmers the whole milk in bulk and distribute it at popular prices, would that be a solution in the towns?—You cannot leave it to voluntary effort.
 3559. In spite of the voluntary efforts in the beef ranch areas?—That is voluntary assistance.
 3560. The two things are the same?—I think the beef ranch areas indicate that the Women's National Health Association might attract the local authorities. I have no objection to bringing in the Women's National

Health Association and the United Irish Women, and all the help you can get. I think it is a delightful thing to see everyone taking a living interest in the people.

3361. If such organisations are willing to work, and are available, do you think that would help both in the creamery and beef-meat areas?—I cannot envisage the creameries selling milk that way.

3362. Why?—Well, if they did, it would go to show that milk would pay much better than butter.

3363. Mr. O'BRIEN.—Milk will pay much better than butter anywhere?—That is to the farmers. It is a question of the pennies; it is not a matter of the pence; it is a question of getting the accounts and of getting the people to bring their pennies.

3364. Miss McNEILL.—It is also a question of time as well as of the pennies.—You would require some machinery.

3365. Mr. WILSON.—I was making the assumption that a voluntary agency of some kind would be available between the wholesale milk seller and the retail milk consumer?—Of course, my evidence as regards municipal areas is quite clear. In the rural districts, probably, the matter is more difficult, and I think the Chairman's suggestion is an admirable one. I think, with any voluntary assistance that could be given in the rural districts, it would be valuable, but you could not leave it to these associations themselves. Associations come and associations go. We have seen enough of them in other countries. Heaven forbid that I should prophesy the demise of any association doing so much good now, but, after all, we know these matters are dependent on many things that may arise, and, therefore, you cannot trust associations alone. If you are going to deal with this you must deal with a responsible body.

3366. The CHAIRMAN.—A statutory body?—Yes, some responsible body, and that body may call in any aid it likes.

3367. It is obvious that legislation never can be based upon the assistance and co-operation of voluntary associations that may be in existence to-day and not to-morrow?—Parliament does curious things, but it will not do that.

3368. Mr. WILSON.—My point was that without legislation a good deal might be done?—That is so.

3369. With regard to Lord Ashdown's remarks that he seemed to buy cattle in the creamery areas, that is a specific charge against the creamery areas?—He disclaimed that.

3370. But the inference is there?—Before you go further, may I say I have mentioned that letter with the express object I stated; that is, with the view of inducing the Commission to probe it.

3371. The CHAIRMAN.—And to invite Lord Ashdown to be a witness?—I have not the honour of Lord Ashdown's acquaintance. I do not know him; if I did I would have written to him. I must decline to enter into any discussion of Lord Ashdown's letter.

3372. Mr. WILSON.—Certainly; but what I meant to say was, was it suggested that the cattle trade as a whole should be considered in Ireland rather than one particular area?—What I took from it was the simple condition that be, by his experience, found it was not safe to buy his cattle for certain purposes in certain areas.

3373. I read the letter at the time.—I dare say Lord Ashdown will tell you more about it.

3374. I was not going into his letter or his opinion. What I was going into was the situation in the cattle trade as compared with the situation in the butter industry. The situation in the cattle trade is this, as you know very much better than I do, that the number of cattle exported has gone hugely up, and the value per head has gone up?—That is part of the growing prosperity of Ireland.

3375. It shows that the prosperity is a perfectly genuine prosperity, in which the conditions of the cattle trade have improved?—Yes.

3376. There is nothing in these figures to prove that the extension of the creamery system has injured the cattle trade?—Nothing.

3377. Now, I want to get quite away from everything controversial, not even touching on the edge of it. We have had evidence submitted that the most dangerous, clinically and obviously, tuberculous cow may

be in a country farmer's byre, and if the farmer makes butter at home, he does not come under the Dairies and Milk Shops Order, and if he supplies milk to his own family he does not come under the Order. We want to try and devise some tests by which these clinically diseased animals are to be seen, and, if possible, slaughtered. Have you any suggestion to make in that direction?—That is a very big question.

3378. I do not mean to say. There are not many. Probably three or four thousand altogether.

Mr. O'BRIEN.—It is estimated about three thousand.

Professor MARRAS.—That is a figure no one could take.

Mr. WILSON.—That is the estimate.

CHAIRMAN.—It is the only figure at our disposal at the present moment?—My difficulty is this, as the question is founded on guesswork as to the extent of the evil, my answer would be founded upon guesswork, and anything that involves the destruction of those animals involves compensation to the owner. I have very great difficulty in giving an opinion now off-hand. I did not make this part of my evidence. We have consulted about it at the Department since without number, and I think I would be safer in saying that our consideration of this question has not gone the length of devising any scheme that we should recommend for legislation. We require more time.

3379. The CHAIRMAN.—You have not matured your opinion upon the question yet?—Of course, you will bear in mind that a great deal of discussion and consideration in connection with the matter would go on before it came to me; but the moment legislation was necessary it would have to come to me, and I say, so far as discussion has gone in regard to this matter, it has not come to me in the shape that I should make up my mind as to what should be done from the Parliamentary standpoint.

3380. Mr. WILSON.—It has been suggested many times, and in many countries, that a cattle insurance scheme would be a means of eradicating this disease?—Yes.

3381. Supposing a central point of such a scheme was that the veterinary inspector should refuse to insure any animal which was palpably and obviously tuberculous, would that have the desired effect?—I have never seen a cattle insurance scheme that would hold water.

3382. Lady EVERARD.—Is it not a fact that on the Continent there are societies for cattle insurance?—There may be, but I have seen many schemes produced in Ireland—none of them workable.

3383. Mr. O'BRIEN.—You have some sort of scheme of cattle insurance in the Congested Districts Board, but it is only, I think, for grazing cattle for some months, or something of that sort. I remember a discussion with Mr. DORRIS?—That is possible, but again I guard myself by saying that I do not profess to be familiar with all the details of the administration. No man in my position could be. It is quite possible that the great graziers, who have immense quantities of unbranded land which they graze, may, before they feed it out, have some insurance scheme.

3384. They have a scheme, but it is not general insurance, but for the cattle grazed?—You will admit a Government insurance of cattle is a different thing.

3385. In France they have an insurance scheme for cattle which is, I think, very much assisted by the Government. You don't know of the French scheme?—No.

3386. Mr. WILSON.—At the beginning to-day there were three or four places given with reference to severity of milk testing, and where serious complaints were made. Would it be possible to send in a list of the places from which complaints were received?—I think you are going to call Mr. Gordon, our inspector. He told me he had reports. I think you had better ask him about it. He has reports from the Agricultural Inspectors about the country.

3387. The CHAIRMAN.—He is to attend at the next sitting.—In regard to my own general experience, these four cases I gave were quite recent, and, of course, came before me in a very direct way in going through the country. I think when the Commission goes to the country they will be disillusioned of any idea that severity is not a fact.

3398. Mr. WILSON.—With regard to the Duties and Consols Order, more particularly in regard to the smaller farmers, who at present do not come under the scope, I think you said you would like to see all cowsheds placed under legislation?—I feel it a most difficult question to answer. In the first place, speaking officially, I am not concerned with public health at all, as I told you. That is for the Local Government Board, and although I personally would like to see sanitary arrangements carried to the highest possible state all over the country, I do not like to knock my head against a stone wall; the head generally gets the worst of it. I am not prepared, either as a member of the Government or as a Member of Parliament, to knock my head against any avoidable stone wall, and if I am going to tell every farmer in Ireland that this Consols Order must apply to their byres and so on—well, I see a lively time ahead, and I don't see any security for me to get to Westminster after, perhaps, three or four years.

3399. The CHAIRMAN.—Will it be necessary to go to Westminster then?—Perhaps not, but I don't think I should have any more security for Dublin than Westminster. In these circumstances, it is a very big question. What is the sound and proper thing to do is quite clear, but where legislation and Commissions often reject the good on purpose to get the best, sometimes the good which could be got would be more effective than the best at which they aim but never get. It is more a question of expediency how far you can take people along with you. It is a question of great difficulty. My own idea would be to have the highest sanitary and hygienic conditions.

3400. From the purely agricultural point of view, the health of cows and calves?—Yes.

3401. I am speaking of public health?—It touches that, of course.

3402. This comes directly under the Department of Agriculture?—Yes, but I say you must hasten slowly with the prejudices of the people.

3403. With regard to cleanliness and tainted milk?—I have a very great objection to this word, as there is no standard of tainted milk and a very unfavorable standard of useless milk. I do not put in any

standard, and would be sorry to attempt it. If you put a definition in a Bill like this, people would try to get out of it, and I have it very largely to the discomfiture of the Courts. We discussed that question when framing the Bill and deliberately left out the definition because of the danger of a definition.

3404. Of course, they have striven in many places to arrive at a definition?—Well, there are very ingenious people. I would rather take the definition of the Courts. You would bring in somebody and leave out others; I think we are quite safe in leaving it to the Courts.

3405. The SHERIFF WOODHOUSE.—Mr. Russell in his evidence mentioned an inland town of seven or eight thousand inhabitants where there was scarcity of milk. Does commercial enterprise fail, generally speaking, in towns of that caliber?—What towns are you referring to?

3406. Tallanagee?—That is a town of about five thousand inhabitants. I saw no evidence of a milk shop from end to end. It is a good town, but the truth of the matter is that the want of milk has produced other things instead. Milk is gone out; people don't care about it now as an ordinary food in the way they did ten or fifteen years ago.

3407. And they make other arrangements?—Yes, and worse arrangements.

3408. Prof. MITCHELL.—Is the explanation of the milk going out that they have made other arrangements?—No, but the other arrangements have come in.

3409. The milk itself is disappearing, and they have made other arrangements?—Yes. Take cocoa, for instance, and condensed milk. They are largely used in Ireland in substitution for new milk.

3410. And tea?—I am glad they are adopting cocoa instead. There is one thing I wanted to say. I quite agree that the absence of winter dairying is largely at the root of this question. I did not mention it before any evidence closed, but I should not like people to think I agreed that question.

The CHAIRMAN.—The Commission was conscious of that fact, but they did not wish to embark on the investigation of a question that might involve them in outside issues.

Miss MARGARET RICHARDS continued.

3461. The CHAIRMAN.—You are one of the Sanitary Officers of the North Dublin Rural District, I understand, Miss Richards?—Yes.

3462. And, of course, you are familiar with the conditions under which the children of the poorer classes are laid?—Yes, I am.

3463. Have you, in your experience, seen districts in which the supply of milk for the children is deficient?—It is, all over my district.

3464. All over the district, you say?—Yes.

3465. When you speak of the supply being insufficient, do you mean that the milk is not procurable for money, or that the money is not available to buy it?—It is not procurable.

3466. Prof. MITCHELL.—The money is there but the milk is not?—Yes, when they buy a pint of milk, of course, they must have the money.

3467. The CHAIRMAN.—Do they use substitutes for pure milk?—Yes.

3468. Such as condensed milk?—Yes.

3469. Do they use anything else?—They only use that with tea.

3470. They have not used the dried milk?—I have never heard of it.

3471. Still it is available?—Not through my district.

3472. Mr. O'BRIEN.—Do you mean by condensed milk, separated or condensed whole milk?—It is the Swiss milk they use.

3473. Nowadays, I think all the condensed separated milk has to be labeled as such—is it that that they get?—I don't think so.

3474. The CHAIRMAN.—Have you many families in your district which find it almost impossible to get milk at all for any purpose?—Yes, I have known cases. Any dairies there are in the district send the milk to Dublin.

3475. I am not now talking of an all-the-year-round supply, because the dairy cattle of Dublin are only grazed in the country in the summer months, but in

the winter months, don't you find that there are districts where milk is not procurable for money?—Yes, in Coolock. There is a big dairy there, but all the milk goes to Dublin.

3476. Is there a dairyman having a dairy herd located in Coolock village?—Yes.

3477. Would he supply any person requiring a pint or a quart?—I don't think so, because he has got a regular supply for Dublin and he would not leave that short.

3478. Would the demand of which you speak be continuous—would it be operative every day?—I don't think it would.

3479. You don't think that the people who are without milk would be in a position to buy milk every day?—No, because they might not have the money for it; when the laborers are idle they don't have the money to buy the milk regularly.

3480. Of course, that is obviously a great difficulty in the supply—that there is not a continuous demand?—Yes, I don't think there would be certainly of a continuous demand.

3481. Prof. MITCHELL.—Do you think that is the reason they cannot get the milk?—It is partly the reason.

3482. The CHAIRMAN.—I understand Howth is a district in which the purveyor of milk could be assured that he could get a continuous demand for a specified quantity from day to day?—He could. In summer, in Howth, there is an increased population and the supply is not sufficient.

3483. For that reason the poor people are unable to get a continuous supply?—They cannot.

3484. It is impossible even for the better class people?—They can get all they want.

3485. Mr. O'BRIEN.—At what price?—4d. a quart in the winter and 3d. a quart in the summer.

3626. The CHAIRMAN.—Is there any difference in the prices charged by the purveyors of milk to the different classes of the community whom they serve?—No.

3627. Is there a uniform price?—Yes.

3628. What I want to get from you is this: you say that the better class in the summer time get a continuous supply?—Yes.

3629. And they are charged a higher price for that continuous supply than the people would be?—No; the same price. The better class people take one or two quarts in the day regularly, and the milk purveyor is sure of these customers. The milk comes there and the poorer people cannot get it.

3630. Do the children in your district get a sufficient quantity of milk in your opinion?—No. A woman told me at Balgriffin that a child of hers, a year and a half old, did not know the taste of good milk. Some people give her a cupful, and she mingles it with condensed milk.

3631. And that is the only milk food that the child gets?—Yes. Other women told me that they get a pint of skimmed milk in the morning, and that has got to do for two days.

3632. There are other dairy-dealers in Coolock?—Yes.

3633. Do they supply milk?—It is all taken to Dublin.

3634. Do you believe that if the Coolock people would ensure a regular demand for a fixed quantity of milk, it would be possible for them to get it?—They would get it, I think, but the poor would have to go a long distance for milk. Perhaps on wet days they would not go to the dairy-shops for the milk.

3635. What I want to know from you is this:—supposing, for example, that the wife of a labourer in Coolock village would contract with the person who produces the milk there to take a pint or a quart every day, don't you think that she would be able to get it?—The women must go for it.

3636. Yes; but at the same time I don't think we can contemplate a scheme where it could be carried to the door. There must be some little inconvenience?—

I have often heard women say that they wanted milk from this dairy place, and they could not get it, because the supply goes short sometimes, and that they want it for Dublin.

3637. A good many Dublin dairy cows are grazed in North Dublin in the summer?—Yes.

3638. What provision is made for housing the men and attendants of these cows?—If there is an old garbidge, or disused lodge, the dairymen sleep in it. They are lashed up all day.

3639. Prof. MERRILL.—The boys?—No, the houses.

3640. The CHAIRMAN.—What provision is made for the cleanliness of the cows or washing of the hands of the milkers?—I don't see any. I have not got anything to do with the dairy business. The Dairy Inspector looks after them, and Dr. O'Donoghue.

3641. You refer to it in your draft evidence. So far as you know, no provision is made for the supervision of the conditions under which the milkers live, or for the cleanliness of the vessels in which the milk is placed, or for the washing of the milkers' hands, or for general cleanliness?—No, I don't see any of it.

3642. Mr. WILSON.—You recommend a remedy—the establishment of milk depots?—Yes. I may say that the number of labourers' cottages has increased very much in my district.

3643. What is your opinion about goats?—There are few in the district.

3644. If the people were encouraged to use goats it would be helpful?—I have often asked people to get them. They say they are too destructive.

3645. That is the ordinary Irish goat?—Yes. I have tried to get the people to get goats.

3646. If a better class of animal that would not be so destructive could be introduced they might favour them?—They have only got half an acre to their cottages.

3647. And the "long moosies"?—Yes.

3648. Mr. CAMPBELL.—Where do these labourers come from that are in the Union cottages?—Generally from the district. They are some of people who live in the district. They tried to get work in the district, but found it hard. A great many people from Coolock work in Dublin at Goulding's Machine Works.

3649. Are any of them connected with farmers?—Yes.

3650. Could they not get milk from the farmers?—If it is found that the farmers sell milk the Dairy Inspector visits him, and they must be registered.

3651. And they stop selling milk on that account?—Yes.

3652. So in your opinion the Order is one of the causes why these people cannot get milk?—I believe so. People don't like to be registered. I know some people have stopped selling milk because they would have to register.

3653. Do you actually know people who were selling milk and have stopped?—Yes.

3654. To whom used they to sell?—To the people about.

3655. Are you aware that in some cases they were selling milk out of a yard that was not sanitary, and you asked them to register?—I told the Dairy Inspector.

3656. And did he say that the farmer himself must ask to be registered?—Yes.

3657. And would he have to stop selling milk?—Yes, until matters are improved. Our Board is very strict.

3658. The Order must be one of the causes of the want of milk by labourers?—Yes.

3659. Have you anything to do with labourers attached to the farm, and who are working on the farm?—Yes, I go into their houses.

3660. Do they get milk from the farmers?—Sometimes, but if there is not milk to spare in the farmers' houses they don't, and some men tell me that they are given coal and milk by the farmers, and that other farmers object to give it. I have but cases within the last week where the labourers don't get milk from their employers.

3661. It used to be the custom?—Yes.

3662. And is that custom dying out?—Yes, in some cases.

3663. Is it because the labourers have got into the Union cottages?—No. It is not for that reason. There is also very little barter-milk, and I don't see the people buying very often.

3664. I was trying to get at the reason why it is that the labouring man, constantly employed on a farm in your district, who used to get milk from the farmer, is not now getting it?—I don't know the reason.

3665. Supposing a farmer keeps a few cows for his own family and his labourers, and he sold to his labourer a little milk, would he have to register?—Yes.

3666. Prof. MERRILL.—If he sold to people on his own farm?—The farmers are nervous.

3667. Mr. CAMPBELL.—And they actually stopped giving milk to their own labourers?—Yes.

3668. Supposing I am a farmer and that I engage a labourer, and I give him as part of his wages two quarts of milk a day, would you come to me and make me register?—Yes. If I found you were getting money, but if you were giving it as part of the wages, that would be different.

3669. Is it not the difference between six and half a dozen?—Yes. If you had milk to spare for one you might have it for another.

3670. Have you any instructions on that point?—No.

3671. For what Authority are you acting?—The North Dublin Rural District Council.

3672. Who gives you your instructions?—The Council. They give me no instructions about the milk.

3673. I am talking of the milk question. If you hear that a farmer is selling milk to his labourers he will be called on to register?—I don't tell the Council that.

3674. Who does tell them?—The Dairy Inspector.

3675. Are you aware if the Dairy Inspector has any instructions with regard to that?—I don't know, it is not my business.

3676. What is your business?—Seeing that the people are clean and living in sanitary houses.

3677. Have you anything to do with the food supply?—No.

3678. You are giving no evidence of what comes before you in your daily work?—Yes.

3679. It is not your business to inquire into these things?—No.

3680. It is not your business to inquire into the shortage of the milk?—No.

3681. Prof. MERRILL.—Who inspects the lodges where the dairy boys that you spoke of sleep?—I get them closed up and they are left idle perhaps for six or eight months.

3682. But you have to see that they are in a proper condition for habitation?—I get the people out.

3688. Where do they move to?—Perhaps into a new cottage. These houses are locked up all day. I hesitated that the boys sleep there at night. They might not be all condemned. The boys sleep there on straw.

3689. You think that in certain districts, if there was a sufficient demand by the people living in those districts the milk would be available for them?—I don't know. They tell me they cannot get bulk-milk for bread, so there cannot be a supply of fresh milk, as the farms does not churn.

3690. Mr. WILSON.—Is this condition a new feature?—It is about ten years old. The population has almost doubled in that time, with the labourers' cottages, and I find want of milk very much among the people.

3691. The population is going up?—Yes, on account of the labourers' cottages. It is being doubled. We have 90 labourers' cottages alone in Howth.

3692. Were not these people living in houses before that?—Yes, but the families get so large.

3693. Mr. CAMPBELL.—There are people that would naturally live in the city?—Yes.

3694. Now they are working in Dublin?—Yes.

3695. But they have been put in cottages out in the country, and are not attached to the farms in any way?—The people to this day live in Coolock, and when their sons and daughters got married they got cottages.

3696. If these cottages were not there would they have gone into Dublin?—I suppose they would.

3697. Prof. MERRIM.—Take these stony cottages in Howth—where do these people come from who occupy

them?—They are the sons of the people who occupied the original cottages there. We were very careful not to give houses to anyone but labourers.

3698. Do these stony people come into Dublin?—No. The cottages are in Howth.

3699. They do not come into Dublin?—No, not from Howth, but they do from Coolock and Balgriffin. They could not get employment about.

3700. Sir STEWART WOOLHOUSE.—Are there milk-shops in Howth?—There are dairies.

3701. The rich and the poor are charged the same for the milk?—Yes.

3702. Do the poor come idle in the day for their supply?—Sometimes. We want a depot where they could get the milk at any time in the day. There is a fine supply of milk in Howth.

3703. Mr. CAMPBELL.—Who would set up this depot and look after it?—I don't know. Perhaps the Women's National Health Association, because we have a fine Branch of it in Howth.

3704. Prof. MERRIM.—You have plenty of milk in Howth, you say?—Yes, in the winter, but not in the summer, when the population is doubled.

3705. Mr. CAMPBELL.—You would make this depot sell only to the poor people?—No, to everybody.

3706. Then you would be no better off than you were, because the rich people would take it?—The poor would have a better chance of getting it.

The Commission then adjourned to the following morning.

TWELFTH DAY.—TUESDAY, 9TH JANUARY, 1912.

The Commissioners met at No. 5, Upper Castle Yard, Dublin.

Present.—P. J. O'NEILL, Esq. (Chairman), LADY EVERARD; MISS MARGARET MCNEILL, Sir STEWART WOOLHOUSE, M.D.; ALICE WILSON, Esq.; DERMOD O'BRIEN, Esq.; J. R. CAMPBELL, Esq., B.Sc.; PROFESSOR A. E. MERRIM, B.Sc., M.R.C.V.S.

S. W. STRANGE, Esq., Secretary

The CHAIRMAN.—The first witness on our list this morning is not in attendance at the moment, but I understand Mr. Young is, and that he has engaged

minutes in the afternoon, so it may be more convenient for him and for the Commission if we take Mr. Young's evidence now.

Mr. JOHN YOUNG examined.

3707. The CHAIRMAN.—I understand, Mr. Young, you are engaged in the dairy industry in Dublin?—Yes.

3708. And you are a vendor of milk in the city and suburbs?—Yes.

3709. Will you tell the Commission how far you think the application of the Dairies and Milk Shops Order has hampered or restricted the supply of milk to the city of Dublin; has it been responsible in any way for reducing the supply of milk available in the city?—I do not think so.

3710. And you, as one trading under the conditions, make no complaint about the restrictions it imposes?—No.

3711. Have you considered the question of licensing, and, if so, are you in favour of or against the proposal?—I am in favour of it.

3712. You think it would facilitate the inspection of the premises and improve the conditions under which milk is produced and sold?—I do.

3713. And you do not think it would lead to a diminution in the supply?—No.

3714. Where is your dairy situated?—At the Hermitage, Golden Bridge, South, Dublin.

3715. You are on the confines of the city?—I was in the country, but the Corporation kindly took me in. I was taken in in more than one sense.

3716. As regards your trade, is it largely in the neighbourhood that the milk is produced that it is sold, or do you send out vans?—We go as far as Rath. man, and we go to the North Circular-road.

3717. You branch, so to speak, on the two outer roads of the city?—Yes.

3718. Which are largely residential?—Yes.

3719. Have you any trade with the artisan class?—Yes, many of the Irishmen working hands—the building connected with the Railway Company.

3720. Are these men in the employment of the Railway Company?—Yes.

3721. Can you give the Commission any idea of the quantity of milk consumed in the family of the ordinary artisan, earning from 30s. to 40s. per week?—They consume even more than many of those who are better off.

3722. Does it depend on the number of children in the family?—Presently.

3723. Do you think that those who are responsible for the care of children realize the importance of milk as a food for children?—Certainly.

3724. And you believe that the children, in that district at least, get an adequate supply?—I think so.

3725. Can you tell me what quantity of milk per head, per day or per week, is consumed by the family of an ordinary artisan, circumstanced as I have described?—It ranges from about one quart to two quarts per day.

3723. Do you make single or dual delivery?—Dual: morning and evening.

3724. Are your cows fed in the country during the summer months?—Yes.

3725. In what district?—In the same district. I have 180 acres there.

3726. You have land close to your dairy?—Yes.

3727. Are the cows within the Corporation district when they are on grass?—Sometimes they are, because the land is divided—part in the city and part in the country.

3728. Is any inspection made of the cows while they are out on grass?—Not that I am aware of.

3729. Is there any difference between the administration of the Corporation Authorities and the Rural District Council?—I have never heard of any inspection being made on any of the Dublin grazing lands.

3730. With regard to the people who are engaged in the milking of the cows and the distribution of the milk, have you any difficulty in enforcing the provisions laid down under the Order concerning them?—I have always to supervise the men, and see that they pay attention to washing their hands and keeping themselves clean. They would not do it unless someone looked after them.

3731. You think it is necessary that the master should exercise supervision in order to ensure that these provisions are carried out?—Yes.

3732. And without the supervision you would hardly expect that it would be done regularly?—You may be quite satisfied that it would not be done.

3733. Is it your experience that the cost of cow-keeping has increased in the city of Dublin within recent years?—Yes.

3734. Might I inquire how long you are in the trade?—About twenty-seven or twenty-eight years.

3735. And you believe that the cost of cow-keeping has increased within that time?—It has.

3736. From what cause?—The cost of feeding, and wages have gone up.

3737. The wages of those engaged in looking after the cows?—Yes.

3738. And what item of feeding has increased most in cost?—Grains have gone up in price considerably, and also oil cake, or linseed cake, has increased in price.

3739. Mr. CAMPBELL.—Do you give linseed cake to your cows?—No; but it is green.

3740. Then you do not buy it?—I have bought it.

3741. The Chairman.—Have the grains deteriorated in quality within your collection?—Yes.

3742. They are now less nutritive than in years gone by?—Yes; I have experience of that.

3743. Have you been in the habit of using grains for your cows?—Yes.

3744. And you believe that the grains now supplied are inferior?—Yes; even within the last five years they have deteriorated on account of the new machinery.

3745. More is extracted at the distilleries and at the breweries?—Yes, both at the distilleries and at the breweries.

3746. Have you made any calculations that would enable you to inform the Commission what, in your opinion, would be the cost of keeping a cow for, say, the six winter months in the city?—Yes, I have put it down in writing. I have three estimates prepared. One of my own, one from Athy, and one from Portlannington.

3747. You say in the written statement you have handed in, "Estimated cost of producing milk for winter season, taking the average stock at twenty cows"—Cost of grains per cow, 2½ barrels per week, at 1s. 3d. per barrel 3s. 1½d.; hay, 1½ cwt., at 4s. per cwt. 6s. per week; oats, 6 lbs. per day, at 12s. 6d. per barrel, say, 3s.; drink, 8d.; roots, 2s."

3748. Mr. CAMPBELL.—Is that for 20 cows?—It is for each cow.

3749. A cow gets a threepenny drink per day?—No, per week.

3750. The Chairman.—You state, "Cost of roots, 2s.; straw, horse and cart, for delivery (man, 20s.; horse, 10s.—30s.)—1s. 6d."—Yes.

3751. And, "Horse and cart, grain and wash draining, 6d.; rent, 1s." That is to cover the rent of the dairyyard and the rent of the shop?—Yes. I put down that figure as the result of inquiry. No man would be able to get this accommodation for less than

400 a year. I consider that is a fair rent. I considered the matter very carefully before I put down that figure.

3752. "Milkers at 25s. per week, 1s. 2d."—Yes.

3753. Mr. CAMPBELL.—I presume that is milker and feeder?—Yes.

3754. How many milkers do you have to 20 cows?—One man is supposed to do it. A man will milk eight cows an hour—a good milker.

3755. The Chairman.—You continue your statement—"Depreciation of the cow, 8d.; depreciation of horses, 3d.; depreciation of cart and harness, 3d.; depreciation of cans, 1d.; shoeing two horses, 2d.; total, 10s. 6½d. per week per cow"—Yes.

3756. Now we come to the receipts—"Average quantity of milk per cow per week, 14 gallons, at 1s. 2d. per gallon, 16s. 4d."—We get 1s. 4d. from our private consumers, but there are few men in the trade who have not wholesale customers, and they only get 10d. a gallon for it. Mine would average about 1s. 2d., and that is the reason I put down 1s. 2d. a gallon.

3757. "Present stock, 20 cows, less, 3s. 2½d."—Yes.

3758. Mr. WILSON.—What are you in the trade for, Mr. Young?—That is a puzzle to myself.

3759. The Chairman.—You state that "There is no interest for capital, and there are many sundry expenses, insurance, brushes, &c., not charged in this account"—Yes.

3760. Mr. CAMPBELL.—What about the manure?—We allow the glass to go for the manure. I have my own spaw, but a good many cow-keepers get straw, and give the manure in return.

3761. Sir STEWART WOOLHOUSE.—This is in the winter only?—Yes.

3762. The Chairman.—You gave, Mr. Young, another estimate from a gentleman named Mr. George Henderson, Ardara, Athy?—Yes.

3763. This is Mr. Henderson's estimate—"Cost of producing milk for the winter season; average stock of 20 cows. Cost of grain, cake, or oats, per cow per week, 3s. 6d.; roots, 2s. 8d.; hay, 6s.; labour and delivery, 1s.; shoeing, 1s.; rent, 5d.; feeding one horse, 6d.; wear on horse, cart, and harness, 2d.; total, 14s. 4½d."—He only produces 10½ gallons. That was his return to me.

3764. He does not state how or where he sells it?—He made better with it. This gentleman informs me he is not keeping dairy cows after this season, as they do not pay.

3765. You have another estimate from Mr. Tedcock, Portlannington?—Yes; he used a patent milking machine.

3766. This is his estimate of the cost of the production of milk in the winter season, taking an average stock of 20 cows. At the present time his stock is 30 cows. "Cost of grains per cow per week, 1s. 4d.; cake, 2s.; torpedos, 2s. 4d.; hay and straw, 1s. 6d.; feeding one horse, 5s.; shoeing one horse, 5d.; labour, milking, and delivery, 1s. 6d.; depreciation of horse, cart, etc., 6d."—He has not given rent. "Total, 18s. 8½d."—With regard to the feeding of one horse, 5s., I consider this price too small, and you must supply at least one horse if you keep only five cows.

3767. Mr. Tedcock does not say what price he gets for milk, but obviously this 5s. for the feeding of the horse would not be a proper estimate in the case of one cow?—No.

3768. It is the average cost of 20 cows?—Yes.

3769. So you would take 8d. instead of 5s. as the cost per cow per week?—Yes, I think you are perfectly right there.

3770. The total cost in this case is 18s. 8½d., and if we deduct 4s. 6d. from that, you would have the cost about the same as in Mr. Henderson's case?—Yes.

3771. Mr. CAMPBELL.—What does he get for his milk?—He did not tell me. I wrote out a lot of those questions and sent them to a number of farmers that I knew, but I only got the two returns. The others did not like to let it be known what they were losing.

3772. The Chairman.—Can you suggest any remedy whereby cow-keepers might be induced to increase their stock and produce a larger supply of milk?—One very important point is that at the present time cow-keepers are deterred from keeping or buying cattle on account of tuberculous disease. In order to help

them, or to encourage them rather, they should get full compensation for all cattle found suffering from such disease and destroyed.

5771. We should be glad to have your experience with regard to the disease of tuberculosis. During the period you have been in the trade, how many of your animals have been condemned?—One; it was slaughtered and found to be tuberculous.

5772. Your cows are inspected for what is known as chronic tuberculosis from time to time?—Yes; Mr. Watson is our inspector.

5773. Have any of your cows been suspected of suffering from tuberculous udders?—No.

5774. In the case of the animal that was slaughtered, had it exhibited suspicious symptoms before it was sent to the abattoir?—No.

5775. Under what circumstances did it come to be slaughtered?—It is a long time ago, and I could not give you the details. I think it was going away, and that it was not eating. I have come to the conclusion that it is impossible to cure cows when they give up their feeding and chewing the cud. I think it is more economical to get rid of them at once.

5776. Than to undertake their treatment or cure?—Yes.

5777. Mr. O'HENRY.—You do not think she was tested with the tuberculin test?—No, she was not.

5778. Prof. MERRIM.—Tuberculosis was not suspected?—No.

5779. The CHAIRMAN.—You suggest, as a means of increasing the supply of milk, that the danger with regard to the purchase of cows suffering from tuberculosis should, as far as possible, be minimised; but your experience would not seem to indicate that you have suffered any great financial loss in connection with tuberculosis amongst your cattle?—Personally, I have not, but if the tuberculin test was to be applied to the cows, there are many cows that might show symptoms and be slaughtered, and yet have only a slight sign of tuberculosis, while others might be slaughtered and be found not to have tuberculosis after the tuberculin test was applied.

5780. It is rather as a safeguard against the application of the tuberculin test that you would enter a protest, before it might become compulsory?—Yes, because I have a strong suspicion that it will become compulsory.

5781. Have you any suggestions other than those which are in your notes which would assist in increasing the supply of milk?—Well, if there was more protection given to the trade than what there is at present, and that the State would compensate in full for cows condemned under the tuberculin test, it would be a great improvement. Milk is for the benefit of the public; for the old and the young, the rich and the poor; it is a universal necessity, and the State should compensate the producer when his cow is slaughtered in the interest of the public.

5782. Your point is that full compensation should be secured to the owner of any animal that is slaughtered in order to safeguard the public health?—Yes; and the reason why I would say the State should step in is that when you are purchasing the cows in the fair or market it cannot be guaranteed that the animals are free from tuberculosis. It could not be ascertained unless the disease is diagnosed and the animal slaughtered.

5783. I am not quarrelling with the provisions which you desire to make, but, judging from your own experience, they would have a very limited effect in increasing the milk supply?—I think it would encourage more people to go into the business if they knew that they were not going to lose as much as they may lose hitherto.

5784. You are apprehensive about what may happen?—Yes. Having regard to Mr. Burns' Bill, and Mr. Russell's evidence here yesterday, I am afraid the trade will be very much hampered.

5785. We hope that common sense will prevail, and that a trade of such interest to the public will not be unduly hampered by legislative proposals?—It is always well to be on your guard.

5786. Have you considered the question of licensing?—Yes, I am strongly in favour of it. It is for the benefit both of the trade and the public at large.

5787. And you do not think it would in any way hamper existing trade if licensing was made statutory?—It would not hamper any part of what I might call the legitimate trade. It would not hamper many; it might a few.

5788. You would not apprehend that the application of licensing by statute would in any way decrease the supply of milk?—I think it would be more inclined to increase it.

5789. Do you think that a more rigid enforcement of the provisions of the Dairies and Milk Shops Order would conduce to the same end?—I think it is stringent enough at present.

5790. Would you be in favour of the universal application of it?—Certainly, for the country as well as for the city.

5791. Do you think the traders in Dublin, who carry on their trade in a city where the provisions of the Order are stringently enforced, suffer a disadvantage by reason of being obliged to compete with other traders who send milk in to Dublin by train, and in whose districts the Order is not rigidly enforced?—There might be a little sales expense.

5792. What I want to ask you is this, do you think that the traders in Dublin compete on fair terms with those who send their milk in from the country, where the provisions of the Order are not rigidly enforced, or, possibly, are not enforced at all?—I think that the Dublin traders are under difficulties that the country people are not. They are under great disadvantages compared with the country people.

5793. You know, of course, that it has been proved that milk is a source of infection, and that in certain districts epidemics of disease have been traced to the milk supply; and that it is possible that people engaged in the milk trade may be what is known to the medical profession, as typhoid carriers?—Yes.

5794. Would you be in favour of having the milk attendants subjected to the Widal test?—I would.

5795. And you do not think that that would be an unreasonable imposition on the persons connected with the trade?—No. The great difficulty is that would be that if you leave a man this week you may not have him next week, and you would want to have a doctor on the spot.

5796. That is a contingency the Local Authorities would have to provide for. It would not be in the interest of the cow-keeper to change his man constantly, and he would not do so without cause?—It is not the cow-keepers who change the man, but the men who change themselves.

5797. Do you think it would be resented if a register was kept of their lodgings, in order that their homes might be inspected, with the object of seeing that their homes and families are kept free from infection?—They might object to it, but it would be very useful.

5798. You think there could be no reasonable objection offered to that from the point of view of the trade?—No.

5799. And you recognise it would be a great safeguard to the public if such an inspection were made?—It would.

5800. Do you think that the dairy trade is more safely left in the hands of private individuals than if carried on by a limited Corporation or Society?—Yes. I think where the trade is carried on by a man who works at the business himself, milking and serving, and, perhaps, having the assistance of one or two members of his family, it is more probably, and more enthusiastically carried on than it would be by a man like myself, or a limited company, who have to depend on workers.

5801. The supervision is better?—The supervision is in the hands of the man himself and his family.

5802. Is there much difficulty in regard to labour in dairy-keeping?—Yes, there are very few really handy men in the city now compared to what there used to be in some years ago. The old Dublin dairy boys seem dying away. They were hard workers, early risers and good milkers. A good many of these families have dropped away.

5803. Is really efficient labour for the purpose of looking after their stock?—Yes.

5804. And it is usual labour on which they have to depend, and for that reason it is less reliable?—Yes.

3806. Suppose one of your men fails to turn up at his proper time, can you supply his place?—It is almost impossible in my place. For instance, in my place you could not get a man around the neighbourhood, and if you were not able to do the work yourself you might have to let the customers wait for the milk.

3806. And the result would be that the delivery would be irregular and your customers displeased?—Yes.

3807. Does the custom vary from day to day—I mean, have you any difficulty by having a surplus of milk one day and not a sufficient quantity another; is the consumption steady?—Very.

3808. Do you sell any milk in a shop over the counter, or do you deliver all your milk in vans?—All by vans.

3809. You have no shop trade?—No, but I supply some parties who retail the milk.

3810. You have no retail milk trade yourself?—No. I gave it up.

3811. Might I inquire for what reason you gave it up?—The reason was that the rent was too high to pay for the working expenses, and I thought the trade would be larger than it was. It was a venture on Arthur Hill.

3812. Where a new colony had been established?—Yes, and I found it would not pay. There were too many cows serving milk about the place.

3813. Through a new colony had been established in the place, you found that the people were provided for by cows milking at their door?—Yes, before I started a shop I delivered the milk by the van. I wanted to give up the van and save expense and have a shop, but the people would not take the trouble to come to the shop.

3814. Sir BRAMWELL WOODHOUSE.—They are well-to-do artisans in your district?—Yes.

3815. The CHAIRMAN.—Is there any milk-shop in your district?—No.

3816. So that the people of that district are supplied by vans?—Yes.

3817. That, I take it, is somewhat a change in the trade?—It is.

3818. Heretofore the custom used to be with people occupying the position of an artisan to go to a shop and purchase their milk there?—They had not the same facilities that they have now.

3819. Is it that the dairymen have demoralised them by sending the milk to their doors, or were they too lazy to go for it?—The people are anxious to get rid of trouble.

3820. You have no milk trade with the poor working classes?—Not the very poor.

3821. Have you any difficulty with regard to ensuring the proper delivery of your milk?—We have not.

3822. I mean with regard to the character of the men engaged in delivering it. Did they ever cause you trouble and expose you to risks that are incidental to the trade—tampering with the milk?—They do from time to time.

3823. Have you any experience of that?—Yes.

3824. A disgraceful experience?—Yes, very disgraceful.

3825. And even although you took every precaution which it was possible for you as an intelligent and industrious milk producer to take, in order to ensure that the milk supplied to your customers was pure, and as it came from the cow, you got into trouble because people interfered with the milk entrusted to them for delivery?—Yes.

3826. And you were held responsible?—Yes.

3827. There is no means you can suggest which would obviate the difficulties arising from that?—As the law at present stands we have no remedy against the man delivering the milk, unless he is seen by some person adding the water. Circumstantial evidence will not be taken, not in England, I think, in a couple of cases, the men have been punished for watering the milk. In one case a man put 20 per cent. of water into his employer's milk.

3828. And the master proved nothing except that he delivered the milk to the man as it came from the cow?—Yes.

3829. The milk was sampled on delivery and found to be impure?—Yes.

3830. And the person in charge of the milk was convicted of having added water to it rather than the owner of the milk?—Yes.

3831. Do you suggest that the application of that principle to Ireland would be helpful to the trader?—Very. It would deter the man from tampering with the milk. This is a very serious matter for those in the trade, especially any person not having members of his own family delivering the milk.

3832. Naturally, men of repute have a distinct objection to have their name associated with what might be regarded by the public as a fraud on them?—Yes. The public very seldom believe that they get pure milk, but they do. I have brought you a photo of my own premises, not that I intend carrying on the business much longer if the position of the trade does not improve. (Three photographs were exhibited.)

3833. Lady EVERARD.—There has been some evidence before us that a very large quantity of milk is delivered by the Great Southern and Western Railway Co. for the benefit of their employees?—I have never heard of it. The clerks get their milk from me.

3834. The CHAIRMAN.—A statement was made here to that effect by a witness. That is the reason Lady Everard asks the question. You don't know any employees of the Great Southern and Western Railway Co. getting their milk supply from the country?—No. I supply the clerks at Kingsbridge and almost all the officials at Inchicore.

3835. Lady EVERARD.—You say that if full compensation could be given for cattle which have been slaughtered it would make a great difference?—Yes.

3836. Have you ever thought over any scheme of insurance of cattle?—Yes, but the premium has always been quoted far too high.

3837. We have been told that in France there is a very perfect system of insurance—that a Society is formed to insure the cows, and that these are insured by the Head Office and by the State?—It is a matter I have thought of.

3838. Do you think if such a scheme could be carried into operation it would be of advantage to the trader?—Yes.

3839. Mr. O'BRIEN.—When you made inquiries about the insurance of cattle do you remember what was the premium asked?—I cannot give you the figures from memory, but I know they were very high.

3840. 5s. per cow?—It was far more. I think it came to something like 15s. or 16s.

3841. Mr. WILSON.—If a scheme could be designed which covered the insurance of the ordinary cattle of Ireland at 5s. per head you think it would meet with approval?—It would fit in very well; but that is high for a big herd.

Mr. O'BRIEN.—I worked it out in the case of my own cattle, and I came to the conclusion, having regard to the losses, that it would not pay me to insure all my animals at 5s. per head.

3842. Lady EVERARD.—It is your opinion that if a scheme of insurance could be devised whereby dairy cattle could be insured, it would be of enormous value to the trade?—Yes.

3843. Mr. WILSON.—Another point that a good deal of attention has been given to lately is the matter of keeping a record of the milk production of each cow. Have you any personal knowledge of that?—No. It would entail the expense of keeping a person to look after it. We start work milking of half-past three or at four o'clock in the morning. It is hard work to have the milk out for six o'clock.

3844. Mr. O'BRIEN.—When do you commence milking for the evening delivery?—About 12.30 in the afternoon.

3845. Mr. WILSON.—The reason I mention the record system is that it is the only method by which we can know whether a cow is paying her way or not. I have personal experience of it, and many of the cows that I thought were doing extremely well were not doing well at all. By that system I raised my weekly average to over 17 gallons per head by weeding out the bad milkers.—How long after you weeded out the bad cows did you continue to find that you had 17 gallons?

3846. That was the average yield per cow. I did not continue the system, as I got some milking

include that prevented me carrying on the record. Only for that I would have continued the record, and I regard it as an essential part of the modern dairy. Would you agree with that?—I would agree that every precaution should be taken to see what the cattle yield. I often go round the millocks and ask how much the cows give. You cannot always rely on their statements. My son very often takes three or four cows and milks them himself, and in that way we know whether they are paying or not.

3847. Without keeping an actual record a man may go wrong with regard to the cow that is paying her way and the one that is not. Have you personal knowledge of that?—We have no personal knowledge of the weighing machines, and I know no shops in Dublin where they are used.

3848. The Chairman.—Is it not a fact that you only milk your cows for the one milking?—I breed a lot. I keep my own bull. As I explained, we only keep cows of which we have some idea knowledge that they are good milkers.

3849. You don't ascertain the accurate yield per cow?—We cannot give figures.

3850. Mr. WILSON.—With regard to the incidence of tuberculosis, your experience goes to show that personally you have not lost very much from that disease?—I have not lost much.

3851. I may say, nothing?—Yes.

3852. Is that the experience of your friends in the trade, generally, up to now?—I have heard from time to time of cows being condemned.

3853. Is it not what you would call a plague in the trade?—No.

3854. The number of cows that die or have been destroyed by reason of the disease is not very great?—No. It is not very great.

3855. We had evidence given to us that in certain areas, and more particularly in the Urban areas, an improvement would be arrived at by the establishment of a municipal supply. What would your opinion be on that?—I would not like to give any opinion on it, because it is a broad question that would take a great deal of consideration before anyone could give an opinion. Certainly, unless milk is delivered the people won't go for it, and I said that to the Councils of Aberdeen when she was starting her depots for children's milk, and I think that she has found it out since, that the people will not go to the trouble of fetching it.

3856. In your estimate you have put the cost of delivering the milk at 1s. 6d. a week?—Yes.

3857. I worked it out myself the other way, so much a gallon per week, from my own experience. Your average cow gives 14 gallons?—Yes.

3858. That is over a penny a gallon for the delivery?—Yes.

3859. That corresponds with my own estimate.—The figures I have taken are the very lowest rate that any man can take for the working of the trade.

3860. The cost of delivery at 14d. or 12d. a gallon is not a very serious item to the working man who buys milk at his own door?—No.

3861. Revolving for a moment to the question of the tuberculous animal, there are some of these beasts in the milk trade that are really seriously ill—pieces you would call them—animals that are uncleanly ill?—Yes.

3862. Would you not consider it a good thing for the owner of such an animal to have it destroyed?—Yes, and for the animal.

3863. The animal is likely to infect its neighbours?—Yes.

3864. But apart from the public health, the farmer stands to lose by keeping an animal of that kind standing in his stall?—Yes.

3865. That would be my opinion too. We have evidence that the City Authorities have no power, or do not use whatever little power they may have, to go beyond their area to control the trade outside?—It is a disputed question whether they have that power.

3866. Would you be in favour of giving them that power if they have not got it already?—Yes, for the simple reason that I think the men in the city are

better educated to the work than the country men—not saying that the country men cannot be educated as well later on.

3867. Is it your opinion that there is very little margin for any kind of expensive improvement in the dairy business?—Yes.

3868. The only improvement that could be carried out without affecting the existing prices would be improvements that would cost little or nothing?—That is so.

3869. These improvements are hard to find?—They are.

3870. Mr. CAMPBELL.—You say, Mr. Young, you would prefer to have the trade in the hands of persons who have their family to assist them rather than that it should be in the hands of big producers?—I said it would be more suitable for the small man than a Company. I did not say I would prefer it.

3871. Is what you would like to be more suitable?—It would be more suitable for the man who carries on the trade himself with, say, 50 cows, with one or two of his family to help him, than for a Company. The Company would be more or less in the hands of all the employees.

3872. But if he was a large employer he could put more capital into the business, and do it well?—The better you do it the more expensive it becomes.

3873. But, unfortunately, it has to be done expensively?—Then the members will have to go out of the trade.

3874. Is it not just these very people you refer to who keep down the prices—the small men?—To a certain extent.

3875. They can do it more cheaply?—They can.

3876. In other words, they can make a profit and you cannot?—They make a profit, and if my view were taken they would only get a workman's profit. They are making the profit of the producer, and of the milk server, and of the milker.

3877. You say that that class of men can do it more cheaply than you?—Yes.

3878. Therefore it is that man who is doing you out of trade?—I would not say that.

3879. You are going out of the trade you say—you have shown from the figures that you cannot continue?—It is not worth it.

3880. Are you satisfied that that small man is working under as cleanly conditions as you can work?—Some are.

3881. Many of them are not, you think?—There are many I cannot say as much about.

3882. They are not so well able to make improvements as you are?—I don't suppose they are.

3883. Is it not the case that in Dublin anyone who can get hold of a shed can put in cows?—Not if the Cowshed Order is put into operation. The cubic space in Dublin is 700 feet.

3884. Your premises are above the average size, I think, judging from the photograph?—Yes. Cowsheds must contain a certain cubic space in the city and country. I think there is a difference of 200 feet between the requirements in the country and city.

3885. It is 500 cubic feet in the country and 700 feet in the city. I did not quite follow your argument that full compensation for the destruction of tuberculous cows would be a help to the trade?—It would.

3886. Because you had only one or two tuberculous cows in your herd?—That is more good luck, but many others are not so fortunate.

3887. You are quite certain that there are many milk producers in Dublin who are actually suffering from tuberculous cows?—I believe so, and if I may give you the reason it is this—there are many men who don't buy as good or expensive cattle as I do, and their cows are very likely to be affected.

3888. It would help the trade in this way, that the Government could buy a cheaper cow?—Yes.

3889. That would be the tendency—that you could afford to risk more?—Yes.

3890. Have you ever seen bringing milk in from the country?—No.

3891. Do you know anyone who has worked it?—There are many people getting in milk from the country.

3892. Do you know where it can be brought from within, say, one hundred miles of Dublin?—I cannot tell you, but the Lanes Dairy bring their milk from the country, and there is another place in Egmont Street that also brings milk from the country.

3895. Did you ever calculate whether you could not buy it as cheaply as you produce it?—I could buy it cheaper.

3894. You would not go in for that system?—No.

3895. Is that because the custom of the trade in Dublin is to produce the milk in the town or near the town?—I think it is more because the greater number of people who want good milk require it fresh. They want it almost hot, and they don't like preservatives which are in all country milk, more or less.

3896. You would get milk from the country without preservatives?—Very little. In the summer time I don't see how it could be done, especially from places so far distant as Cork, Brandon or Tipperary. I do not know how it would keep.

3897. Do you know the railway freight for milk?—1d. and 1½d. per gallon according to the distance.

3898. And 1d. would carry it a long distance?—I suppose it would carry it a fair distance.

3899. None of the dairy men have tried to increase their trade by buying such milk and delivering it to their customers?—No.

3900. If you began to do that you would be considered as departing from the well established custom of the trade in Dublin?—If my customers knew I got it from the country I don't think they would take it.

3901. Notwithstanding that London takes all its milk from the country?—Yes. The London people would be very pleased if they could get milk fresh from the cow.

3902. I don't think they mind that. What they want is good milk. That system has never been tried by the dairymen in Dublin?—No.

3903. You are not prepared to give an opinion as to whether, if you got it at 6d. a gallon on rail and 8d. in the winter, it would not pay?—No.

3904. Don't you think people would be willing to sell it at that price if they were asked?—In the country?

3905. Yes?—Not in the winter.

3906. If you give me an order, I will try and execute it for you. When you send your milk out with your man, do you send the can up?—No.

3907. Why don't you do that; he could not then scold it?—He has to take it out of the can.

3908. He takes it out at the bottom?—Yes. He has a serving can. I know a fellow who carried a two-gallon can of water in the car with him.

3909. Mr. WILKINSON.—That would not be in Dublin?—It was.

3910. The CHAIRMAN.—Was it on the North side?—I won't divide the city.

3911. Mr. CAMPBELL.—It is a very common practice to put on a little acid and the man could not break it without your knowing it. These acids are very cheap?—We put on acids very often, but if you have a dishonest man you cannot tell what he may do. I don't say that the majority of them are dishonest, but from time to time you will get men that you could not watch, even if you were sitting on the car with them.

3912. How often are your yards inspected?—About once a week.

3913. Who is your Veterinary Officer?—He does not come once a week. He turns up about three or four times in the season.

3914. Who inspects it then?—The Inspector of Cow-sheds.

3915. The CHAIRMAN.—Mr. Collins, is it?—He comes occasionally, too. We have one inspector coming to us every week.

3916. Mr. CAMPBELL.—Does the Veterinary Inspector examine the udders of the cows?—Yes.

3917. You told us that grains are poorer now than they used to be?—Yes.

3918. How do you know that?—I would be giving away trade secrets if I told you that—I am in the grain trade. The machinery in the breweries and distilleries for grinding is much finer now than it used to be, and the barley, instead of being subjected to the old process, goes through a different process and it comes out almost new.

3919. It must be that they are taking the starch more thoroughly out of it?—Yes. There is as little nutriment as possible left in it.

3920. The CHAIRMAN.—There is one point with reference to the cost of production I should like to clear up. The figures you gave us show an actual loss of 8s. 2½d. per cow in the cost of production for the winter six months?—Yes.

3921. Obviously the trade could not be carried on on these terms for the whole year?—Certainly not.

3922. What do you estimate is the cost of keeping a cow on grass for six months?—4s. 6d. to 5s. a week.

3923. So that the profit made on the sale of the milk during the summer months must go to redeem the loss arising out of the sale during the winter months?—Yes.

3924. I wanted to make that quite clear, because the public might be surprised if it was stated that the cowkeepers were carrying on the trade at a continual loss. But your explanation is that the profit arising out of the sale of the milk when the cows can be fed cheaply in the summer season enables them to carry on the trade in the winter months?—Yes.

3925. Is there any difference in the price paid for the milk?—Yes, the price of the milk goes down in the summer to 1s. a gallon.

3926. There is a reduction of 2d. per gallon in the summer?—4d. per gallon. 1s. 4d. is the standard price; I only gave 1s. 8d. as my average.

3927. The milk yield is increased in the summer?—Yes.

3928. To what proportion would you say? You gave us the average milk yield as 24 gallons per cow in the winter months?—Yes.

3929. What is the average in the summer?—I did not calculate that, I suppose two to two and a half gallons extra.

3930. So that you would have an average yield in the summer of about 16 to 17 gallons per cow per week?—Yes.

3931. And that would be 16s. or 17s.—that would be the result in money?—Yes.

3932. I took down the cost of your feeding at 1s. 4½d. per week for the winter months?—Yes.

3933. And the cost of delivery and other incidental expenses stands at the same figure in summer as in winter?—You will not get more than twenty weeks' milk in the summer, and you have to take the winter at thirty-two weeks.

Mr. WILKINSON.—I have worked out Mr. Young's figures as follows:—Feeding one cow during 30 weeks of summer at 6s., 45s.; for 32 weeks of winter at 24s. 4½d., 233s.; expenses of delivery, rents, depreciation, &c., for 62 weeks at 5½d., 215s. 8d.; total, 448s. 8d.

3934. Prof. MINTHAM.—Do you find any difficulty in obtaining dairy cattle in the markets?—No.

3935. There is always a good supply of fair dairy cattle in the markets?—There are a good lot of them that are not exposed in the market at all, and they are sent to England before the local customer gets a chance to buy.

3936. That is illegal, I believe?—I believe so.

3937. Would there be any difficulty in buying a cow subject to the tuberculin test?—I have heard from various veterinary surgeons that it is not a true test.

3938. You may take it from me it is. Is there any difficulty in buying a cow subject to the tuberculin test?—No.

3939. Do you think there would be any objection on the part of the dealer or customer in applying the test, and buying the cow if he passed it?—They could not apply the test in the market. The cows have to be put into the sheds for two or three days, and the dealers would never stand that.

3940. That is what I wanted to get at—there would be a great difficulty in buying a cow subject to the test?—Yes.

3941. Do you not think that to a certain extent the purchaser is bound to take a certain amount of risk?—Yes, he takes all the risk.

3942. Do you not think any customer should take a certain amount of risk?—No.

3943. Of course you maintain that if a cow is seized and slaughtered for the protection of the public health, the public ought to pay a certain amount of the loss accruing to the owner of the cow?—Yes.

3944. But you do not wish that the public should pay it all?—I think they should; because if it was not for the tuberculin test, and the danger of consumption arising from having anything to say in the milk of a cow that is tuberculous, and where the cow is bought to be used for the benefit of the public as a milk cow, I am of opinion that in that case the State should pay. It is for the benefit of the public that the disease should be got rid of. The man not in the dairy trade has other means of getting rid of his animals without anyone knowing anything about it. But in the case of the milk cow there is constant inspection. This is a very broad question—the supply of pure new milk; and

tuberculosis is a disease on which a great deal of money has been spent in trying to prevent its spread. Here is the milk which is supposed to be life and blood to everyone, and you want the man to produce that without helping him in any shape or form.

3943. I wanted to know exactly whether, as regards this compensation, a certain amount of loss might not be properly credited to the owner?—Why did the Government give us full compensation in regard to plague-poxema and swine fever, and this is a more vital question than the one or the other, and I think the Government should assist.

3944. Mr. CAMPBELL.—In the case of plague-poxema and swine fever, they slaughtered all animals in contact, but they did not give full compensation for the diseased animals?—All were valued.

3945. Prof. MERRIAM.—Do you find the veterinary or dairy inspection incomes?—No, I think the Inspectors are very reasonable, and they are of benefit to the people keeping the cows, as well as to the public.

3946. Do you not think that the same form of inspection ought to be resorted to in the country as in the city?—Most decidedly.

3947. That those in the business in the country should be subjected to the same inspection as you are?—Yes.

3948. We know nothing about the milk that is sent from the country into the city—the conditions under which it is produced?—No.

3949. And you think there should be the same inspection as you have here?—Yes.

3950. The Chairman referred to the so-called Widal test, to see if people were infected with typhoid?—Yes.

3951. Do you think the men themselves would have any objection to this test?—I do not know. I do not think they would when they know how simple it is. In fact, it would be no harm if we all got it.

3952. Mr. O'BRIEN.—You never tried sending out milk in sealed bottles?—No.

3953. Is it being done here?—Yes.

3954. Extensively?—No.

3955. Have you ever tried taking samples of the milk you were sending out for delivery and keeping them, in case there was any prosecution for added water?—I never kept a sample for that purpose. I keep it to test it for the cream, but not to test it for the water.

3956. When you get a new man, who is going to deliver your milk, do you not take a sample of the milk to tell back on in case of prosecution?—No; but I think it would be a very good plan. There is, however, a difficulty. The man could swear that the sample retained was not from the milk delivered.

3957. In the case of a prosecution, I think you would be well protected if you said, "I am in the habit of taking samples of milk, and here is a sample of the milk before the Court."—I think it should be done, but the milk-seller might swear that he did not see the sample taken, or that it might not be a sample at all of the milk he got to deliver. It would be very good circumstantial evidence in a way. The law says you cannot prosecute a man unless you have positive proof from someone who actually saw him adding water to the milk.

3958. What I was thinking was that where a man delivers milk, and the customers complain of the milk, or an inspector meets him and takes a sample, and finds that the milk is below standard, the inspector prosecutes you, not the man?—Yes.

3959. And it seems to me that it would be a prohibition against such fraudulent methods of the man if you had a sample already taken. You have never tried that for that purpose?—No, but I was thinking of doing so.

3960. Do you have any difficulty with your customers about not getting up in the morning to take in the milk?—Yes.

3961. Do you have to leave cans at the doors sometimes?—No.

3962. I suppose most of your customers get up early?—Behind our neighbourhood they do, but in the other districts we serve the girls wait for the milkmen to call them, and that causes a lot of delay. It causes no much delay that we have to send an extra cart in the morning.

3963. You do not leave cans at the door?—No.

3964. Do you think it would be possible to have municipal depots situated at stated places, which would

be under inspection, and then insist that everybody should send round there for their milk. All the milk would come into these depots from the country?—I do not think so.

3965. There is no doubt that you can get milk very much more cheaply in the country than you can supply it here as a profit?—Yes.

3966. I may say that if we could sell milk in the Co. Limerick at 8d. per gallon all the year round it would pay us better than making butter out of it; and if you add 1d. or 1½d. to that for cartage, it would pay you to take it?—Yes.

3967. Supposing you had such an organisation for the distribution of the milk, and all the milk came into these central depots at that price, it would pay very well?—How is it that at the present time most of the creameries in connection with Co. Limerick have only about two deliveries in the week, and that they are sending it to one creamery, and yet you say you could send up milk plentifully by rail.

3968. What I mean to say is, not that the milk is plentiful, but that it would pay us far better to sell milk up here if we could get 8d. a gallon for it, than it would be to send it to the creamery. In my creamery the highest price paid for whole milk is 7½d. a gallon, and that is only for one month of the year. The average price all the year round is 7½d. a gallon. Those of us who tried winter dairying found it does not pay unless you have very good cows which give great quantities of milk; but if we were to get 8d. a gallon for the milk it would pay us to produce it in the winter. The creameries cannot afford to give more than 7½d. a gallon for the small amount of milk they can get; they have to take it out of the summer milk. I think it would certainly pay better; and do not you think in that case it would be better not to have your dairy and cowsheds in the city?—I do not at all agree with that. The milk coming from the country goes a great deal of handling than the Dublin milk does not get, and I do not think that it can be sent up to the city without a lot of preservatives in it. The late Dr. Moore Madden said that legislation should be brought in to prevent the use of any preservatives whatever, especially boracic acid, as they are very injurious to children. That was his opinion of it. I believe no milk can be sent any great distance without undergoing some process that would be injurious to it.

3969. How far do you send your milk?—About two and a half miles at the very farthest.

3970. In those spring carts?—Yes.

3971. Supposing you put the pure milk into a clean can, say, fifty miles away, do you think there would be any difference between it and your milk sent two and a half miles by cart?—I do, because all the milk delivered in the city in the morning comes up in the evening.

3972. I was speaking of the actual detriment to the milk—the churning it gets in the train?—I cannot give an opinion on that. If the city dairymen gave up supplying milk, the city would be very short of milk. The more educated countrymen become the more they will see that they have other ways of making money than by producing milk.

3973. Sir STEWART WOOLFE.—You use no form of preservative in your dairy?—No.

3974. The Dublin cow-keepers do not use it, as a rule?—No; I know none who do.

3975. The great majority do not?—No. The milk is taken from the cows in the morning and delivered, and the same thing takes place in the evening.

3976. Which is the preservative most likely to be used?—Boric acid.

3977. Miss McNEILL.—Do you know whether the price of milk has changed in Dublin during the last twenty-five years; I mean the selling price?—Yes.

3978. Has it increased?—It was dearer.

3979. Generally speaking, I suppose the working classes in Dublin are earning higher wages than they were?—Yes.

3980. Suppose it should be necessary to increase the price, would that be a corresponding hardship on the working classes?—No, the working classes can afford to pay for their milk at the present day prices.

3981. The Chairman.—Or even if the price should be necessarily increased because of the increased cost of production; if new regulations were made which might involve increased expenses in production, do you

think that that would in any degree lower the consumption of milk among the bumble class?—I do not believe it would.

1984. Mr. CAMPBELL.—You mean you believe that if a man is getting twenty shillings a week, and that you increase the price of milk, it will not be a bar to his

procuring it for his children?—I do not believe it would.

1985. I do not agree with you?—It may be a small extent.

1986. Sir SHERWOOD WOOLCROFT.—I suppose the man who uses milk for his children would use it still?—Yes.

Mr. JOHN WATSON, M.A., examined.

1987. The CHAIRMAN.—You are assistant principal at the Marlborough Street Training College, Glasgow?—Yes.

1988. And you have had the advantage of paying a visit to Copenhagen in order to inspect the conditions under which milk is supplied there?—Not in order to inspect the conditions; but I was in Copenhagen.

1989. Took it on a tour?—Yes.

1990. I would be glad if you would give the Commission a history of what you saw on that occasion?—I have prepared a short statement, which I will read with your permission. In the year 1873, Mr. Gunnar Raack, a prominent butter merchant of Copenhagen, had his attention directed to the abominably bad condition of the milk supply of the city. The cows were kept mostly as an adjunct of the distilleries, on the refuse of which they were fed. Workmen were unable to obtain pure clean milk, or, indeed, milk of any kind, unless they patronised the spirit stores of these distilleries. Consideration of this state of affairs led Mr. Raack to found the Copenhagen Milk Supply Co., with the small capital of £500. This was thirty-three years ago. To-day the capital exceeds £25,000, and the Company employs over four hundred servants. The motto of the Company is "Ren Mælk af sunde Køer"—pure milk from sound cows—and I propose to describe as briefly as possible the means adopted to attain this end. The Company owns no cow. The milk is obtained from a number of selected farms in the islands of Zealand and Falster. These farms graze about 8,000 cows, and the quantity of milk dealt with averages 8,000 gallons per day. A farmer, wishing to supply milk to this Company, must sign certain regulations, among which are the following, and which are to be found in Sir Rider Haggard's "Rural Denmark," Appendix A:—

"REGULATIONS FOR THE SUPPLYING OF MILK TO THE COPENHAGEN MILK-SUPPLY ASSOCIATION."

"All provender given to the cows must be perfectly fresh and in good condition. It must be free from everything that would communicate to the milk any abnormal odour or colour.

"In summer the cows must be turned out to graze, and be given nothing but grass and clover.

"Only in case of necessity may they be given dry forage and chopped beets, and that always in the open air. It is forbidden to keep them stalled during this period of the year.

"The farmer must arrange with the Society in advance as to the nature of the food which he proposes to give the cows during the winter.

"On this point, however, he must, in any case, adhere to the following rules:—

"(a) **ROOTS.**—Carrots and beetroot should be given in the proportion of 1½ bushels (36 litres) per cow, but only on condition that they are mixed with at least 5 lbs. (Danish) of corn, beans, and cake. Cows which supply milk for infants must only be given roots in the proportion of half a bushel. Turnips, cabbage (choucroute) (Væstelrød, i.e., cape cabbage), swedes, or the tops of turnips or kohlrabi (fæver) may not be included in the food.

"(b) **CAKE.**—Only oil and sawdust (træsnævel) cake may be used in the proportion of at most 1 lb. (Danish), with at least 5 lb. (Danish) of corn and beans. Cows supplying milk for infants may not have cake.

"(c) All refuse from distilleries, etc., is forbidden.

"Before stabling the cows in the autumn, the tail, hindquarters, and udders must be clean.

"The calving period must be so regulated that the quantity of milk delivered to the Society during the months of September and October is not less than the average quantity supplied during the first four months of the year.

"THE TREATMENT OF THE MILK."

"The milking must be carried out with the greatest care and the greatest cleanliness. Speaking generally it must be done under the following conditions:—

"(a) The milkers during the milking must wear a special dress, and be provided with a towel, to use when they need to wash their hands.

"(b) The byre must be well lighted, especially behind the cow, in such a fashion that the milker can do his work properly.

"(c) Immediately after milking the milk must be passed through a metal sieve, covered with a cloth of clean and fine linen.

"(d) Thereafter the milk must, at every season of the year, be passed through a refrigerating apparatus, which lowers its temperature to 4 deg. Celsius (41 deg. F.). It must be kept at this temperature until it leaves the farm.

"(e) The removal of impurities must be carried out in the morning after milking, and be finished in the afternoon, at least one hour before the evening milking.

"(f) The milk from cows that have just come into milk, that from sick cows, and also that from cows which are giving less than 6 litres a day, must be stored separately in such a fashion that it can neither be mixed with nor confounded with the normal milk that awaits despatch to the Society.

"The farmer must always have in store a fresh supply of ice, of at least 30 lbs. of ice to every 100 litres of milk.

"He must use the 'Lawrence' apparatus for the purpose of refrigeration, which apparatus the Society can deliver to him on his farm."

"The contractors are bound upon their word of honour to reply to all the Society's inquiries with reference to the milk which they supply.

"They are bound also to allow the veterinary officer of the Society to inspect their byres whenever he judges this to be necessary.

"Cows certified by the veterinary to be tuberculous must be immediately separated from the herd and sold, or killed as soon as possible.

"All heifer bred for milkers must have been subjected to the tuberculin test. Also the injections must be repeated at least once a year in the case of animals that have not reacted to the test.

"The contractors are bound to supervise with the greatest care the health of all persons living or employed on their farms, as well as that of their own families. They are bound, in case any infectious disease should appear, to notify the Society at once, which will forthwith take the proper steps to stave the sickness.

"In this case the Society declines the milk until every trace of the illness has disappeared. The Society, however, during this period will pay for the milk, although it does not receive it.

"In case the Society discovers that the milk supplied is below normal in quality, and, therefore, not suitable for sale, it reserves to itself the right to refuse it without compensating the farmer."

Such are the principal conditions of the Copenhagen Milk-Supply Company. Together with those which it has not been thought necessary to translate, they must be signed by the contracting farmer before he begins to supply milk to the Society. It will be observed that

these regulations are extremely strict; but I was informed that, as a rule, they are rigidly observed. These regulations are taken, as I have stated, from Sir Rider Haggard's "Rural Denmark," Appendix A. For the carrying out of these regulations the Company employs veterinary surgeons, who, twice every month, examine each individual cow, at the same time removing from the cowhouse in question any infected or suspected cows. At each visit of inspection he fills out and forwards to the Company a large scheduled form, giving particulars as to the state of health of the cows, etc., and at every other visit he fills up an additional form with particulars about the fodder. At least twice a year, in the spring and in the autumn, the travelling dairy expert of the Company visits each farm, without previously announcing her arrival, and remains there from twelve to twenty-four hours, in order to control cleanliness in milking, the use of the Ulander filter, the cooling of the milk, etc., with reference to all of which she has to fill in and forward to the Company a fully detailed form.

3991. It will be observed that the cooling of the milk immediately after milking is insisted upon, and the temperature test is the first one applied after arrival at the depot. Special ice-cooled vans are sent out to the various railway stations, and the Company guarantees that the temperature of the milk cannot rise above 41 deg. F. on the journey, provided it has been delivered to the vans at a temperature not exceeding this. The railway runs these vans into a siding on the Company's own premises. On the occasion of my visit to the depot, which I reached at 10.40 p.m., the train had just arrived, so that I had an opportunity of observing the treatment of the milk from its arrival until it was ready for delivery.

I may remark here, that from 10 p.m. until 5 a.m. is the busiest time of the establishment, as it is during these hours that the milk is dealt with. On arrival, the temperature of each can is first taken, and any milk exceeding 6 deg. Reaumur (45 deg. F.) is set aside and paid for at a reduced rate. Two expert women stand at a table, and to one of them is given a sample from each can. She first smells it and then tastes it. These women work in pairs, and are on duty for only an hour at a time. It is said that they are so skilled that they can readily detect anything wrong with the quality of the milk. In addition, each farmer's milk is periodically analysed, and the result communicated to him. Having successfully passed these two tests, the milk is accepted, weighed, and credited to the sender. The cans are next emptied through a sieve into vats, whence the milk is pumped over Lawrence's coolers, leaving them at a temperature slightly exceeding freezing point. It then runs into an enamelled tank, and from this it is forced by a pump through a cylinder about 30 inches high, containing fine gravel, with a layer of hessian and cotton wool on top. This gravel is sterilised daily, after use, by being boiled under pressure in a solution of soda, and afterwards in several changes of clean water. From the filter the milk passes into large tanks, from which it is either bottled direct or drawn later in the morning into cans for distribution among the customers.

3992. Cooling and filtering are the early processes to which the milk is subjected from its arrival at the depot. Mr. Busck was emphatic in his disapproval of pasteurisation. His opinion, in which he is supported by many of the leading physicians, was forcible and to the point. "He who purchases good milk is a fool, he who pasteurises bad milk is a rogue." Mr. Busck believes that the same object can be attained by obtaining the milk from healthier cows and in as clean a condition as possible, and by cooling it immediately, so as to arrest the development of any micro-organisms which may happen to get into it during milking. He holds that the only excuse for pasteurisation is that it is the lesser of two evils, and the Copenhagen Milk Supply Co. has shown to the world that pasteurisation is an unnecessary evil.

3993. By an admirable sub-division of labour, the milk is bottled at a rate which has to be seen to be believed. No fewer than six women and two men handle each bottle. One woman first fills them from tugs so arranged that they open automatically when inserted in the bottles and close when the bottles are withdrawn. She is able to attend to six of these tugs. The filled bottles are next passed to a woman who carries them with the aid of a machine. The cork when taken out is thrown away or burned. Another woman ripens off any milk which may have got on the outside of the bottle. The next lies on the cork with wire; another threads on the seal, which

the sixth woman stamps. The men then put the bottles on racks which are placed on ice.

3994. A differently shaped bottle is kept for each article. They are perfectly plain, the monogram of the company being embossed on, instead of being cast in raised letters, the angles of which are exceedingly hard to clean. When received back, the bottles are first rinsed in a tank of running water and then placed in a tank containing strong soda lye; from this they are taken and pushed on to a brush revolving at 2,000 revolutions per minute, which thoroughly cleanses the inside, while two smaller brushes grip the neck outside. They are again rinsed in running water and finally inverted over a jet of water under pressure, which the operator opens by means of a foot valve. They are then placed on racks to drain. The cans in which the milk is received at the depot are, after draining, sprayed with cold water by means of a triad-shaped sprayer, which enables a workman to deal with three cans at once. They are next fixed on a large wheel, seven feet in diameter, which dips them into a vat of lime water to prevent or remove all traces of acidity. As the wheel revolves the cans empty automatically, after which they are again rinsed in cold water and inverted over a jet of superheated steam, which completes the sterilisation and leaves them perfectly dry. The Company's own delivery cans are similarly dealt with. The taps on these delivery cans do not open direct into the cans, but screw on to central-shaped tubes inside. The tubes are perforated with holes in such a way that the tap is fed simultaneously from the top, middle, and bottom of the can, thus ensuring each customer getting the same quality of milk. The arrangement also permits of a thorough cleaning of the taps.

3995. The delivery vans, which much resemble our bread carts, carry on top in sealed cans the milk which is intended for hospitals, institutions, etc. The cans from which the ordinary customers are served are placed on either side in the front portion of the vehicle. These cans are also sealed and locked to the vans in such a manner that it is impossible for the milk to be interfered with. The taps project from the side, and over each is written the quality and price of the contents. The taps are protected from dust by night-dipping covers, and anyone who has witnessed a milk van being driven through some of our streets when the March wind makes the air almost too thick to breathe, will agree so to the necessity for this provision. The rear compartment contains trays holding the bottles of ordinary milk, Bottenmilk, Buttermilk, Infants' milk, cream, etc., and over the door are quoted the various prices. The vans are ice-cooled in summer. The driver of the van is accompanied on his round by two or more boys who serve the milk. The driver, however, is responsible for everything connected with the delivery.

3996. It would, I am afraid, take too long to give a detailed description of all the various departments of this great concern, but there is one to which I wish to refer particularly. It is that for the preparation of the milk for infants. This milk all comes from one farm, on which is a herd of 1,100 cows. Mr. Busck recently introduced two improvements for the purpose of supplying milk still purer and with fewer bacteria, so that it could be used as milk for infants without being boiled. He first designed a milk pail constructed as follows. I am taking the description from a pamphlet by Professor Bøggild in "Mælken-Tidende." The pail consists of a cylindrical tinned steel pail, in the bottom of which is placed a pear-shaped copper receptacle, which, as the illustration shows, is closed by means of a flat lid under the bottom of the pail, which lid can be screwed off and on by means of a large screw key. When the pail has to be used it is turned upside down, the lid of the receptacle is unscrewed, and the latter, through a small wide funnel, is filled with a mixture of one part of common salt and three parts crushed ice or snow. The lid is then screwed on and the pail is ready for use. The ice and salt in the receptacle cools the milk, which is milked straight into the pail, so that it is once partially cooled. The milk will thus immediately lose its cow heat, and the micro-organisms which may have got into the milk during the milking will have less favourable conditions of development than if the milk went on retaining its cow heat during the whole of the milking process. The other improvement which Mr. Busck introduced was the providing of special milking premises on one of the estates which supply the "Bottenmilk." These premises, situated in the vicinity of the cowhouse, consist of a well-lighted and well-ventilated

room, into which the cow is led through an outer room, where the final milking has taken place. In the milking room, the milkmaid, in a clean white dress, first washes the cow's udder with a damp cloth; she then washes her hands prior to beginning to milk the cow, always milking the first two or three jets from each test into a pail, the contents of which are kept separate and used on the farm. The milk from the Busck pail is poured through a Ulander milk filter into a large can which stands in a tank of ice, where the milk is quickly cooled down to about 5 degrees centigrade. Milking outside the cowhouse, with the observation of the precautions referred to above, serves to protect the milk against impurity from micro-organisms; and, owing to the rapid cooling of the milk in the Busck pail, the germs which may get into the milk will have comparatively little chance of development and propagation. This milk is sold as "Milk for Infants," and a portion of this is used in the preparation of Infants' Milk, mixed with sugar and water in proportion to the infant's age. Consumers, in spite of the higher price, are satisfied with this milk, and it should be pointed out that the Copenhagen Milk Supply Company only guarantees it to keep twenty-four hours, for fear some customers might not keep the milk in a cool place—they are, of course, advised to keep it in a cool place, where it is not exposed to light—and under such conditions I have several times kept this milk for four days without noticing any difference in the taste; there was a thick layer of very good cream.

3997. In order to obtain the opinion of a foreign expert as to the efficiency of Mr. Busck's pail, one was sent to an agricultural experimental institution at Leipzig, and Dr. Müller informs me that the milk milked into Mr. Busck's pail kept considerably longer than the same cow's milk when milked into an ordinary pail. He made the following experiments:—a certain cow which yielded twelve gallons of milk, was milked from the two right teats into Mr. Busck's pail and from the two left teats into an ordinary pail, the milk being placed side by side in bottles, in a room with a temperature of 15° centigrade—the milk from Mr. Busck's pail being only 21° centigrade and the milk from the ordinary pail 32° centigrade when placed there. Trials were also made with washing the cow's udder very carefully and drawing the first milk from each teat before the milk was milked into the two pails. In this instance, the milk in the ordinary pail grew sour and thick after being kept eighty-two hours, whereas the milk from Mr. Busck's pail did not grow sour until after having been kept for one hundred and forty-four hours. Milking into the two pails was also tried without the udder first being washed, and without the first jets having been milked into a separate pail, in which case the milk in the ordinary pail coagulated at the end of fifty-two hours, whereas the milk from Mr. Busck's pail only coagulated at the end of ninety-six hours. Finally, trials were made with washing the udder but without milking the first milk into a separate pail before milking into the two test pails began. In this case, the milk in the ordinary pail could stand boiling up to forty-eight hours after milking, whilst the milk from Mr. Busck's pail could stand boiling up to seventy hours after milking. The rapid cooling during milking, it will thus be seen, has in all cases referred to above had a very notable effect. This pamphlet contains a full description and illustration of the pail, and with your permission, sir, I shall hand it in.

3998. The "Infants' Milk" is sent out in wire stands containing from seven to ten bottles each, similar to what were on view at the recent Exhibition promoted by the Women's National Health Association. The younger the child is the more bottles the stand contains. Each stand contains enough to feed a child for twenty-four hours. No. 1 stand contains ten bottles, consisting of one part milk and two parts water, with added sugar. In Nos. 2, 3, 4, and 5, the proportion of milk is gradually increased, until in No. 5 we have seven bottles of pure milk. Or it can be obtained in half-litres or litre bottles, so can also cream from the same milk. This milk must not be confounded with the Bormes milk, or milk for children, which is obtained from specially fed cows, but is not milked in special houses or into the Busck pail. Bormes milk is a staple beverage in Copenhagen, and is called for in the restaurants almost as frequently as mineral waters.

3999. The fact that the Danish currency and measures are both different from those in use in this

country introduced a difficulty when comparing prices, I have, however, worked out the following. Of the Danish prices I am sure, as they are taken from notices made on the spot, and in the case of the ice-milked milk they are taken from the Company's price list. Take a sovereign as equal to 18 kroner and a lire as equal to 1½ pinks.

Prices of Milk, etc., from the Copenhagen Milk Supply Co.

Ice-cooled and filtered milk, from can—	16 ore per litre or 2½d. per qt.
The same milk, bottled—	17 ore per litre or 2½d. per qt.
Children's milk, bottled—	21 ore per litre, or 3½d. per qt.
Infants' milk, as above described, pure (bottled)—	24 ore per litre or 4d. per qt.
Infants' milk, specially adapted according to quantity of water and sugar—	35 to 45 ore per stand, or 4d. to 6d.

but through the aid of the Society for the Protection of Infants these stands are sold to the poor for 15 ore, or about 2d. each.

No. 1, or Whipping Cream, containing 30 per cent. butter fat—	1 kr. per litre, or 1s. 4d. per qt.
No. 2 Cream, containing 30 per cent.—	80 ore per litre, or 1s. 6½d. per qt.
No. 3 Cream, 14 per cent.—	60 ore per litre, or 10d. per qt.

Cream from ice-cooled milk is sold for 1 kr. 60 ore per litre or 2s. per quart.

4000. I have not touched upon the prices paid to the producer for his milk, but full information on this point can be had by reference to Sir Rider Haggard's book on Rural Denmark, pp. 207-10, where he shows conclusively that there is very little difference between that paid to Danish and English farmers; and the great difference in price to the consumer arises from the fact that in Denmark the work of distribution of milk is done for thirty per cent. of the original cost, and this includes the profits of the milk company as well, whereas in these countries the cost of distribution averages one hundred and twenty per cent. It was stated to-day by a member of the Commission that the average price in certain parts of Ireland is 5½d. per gallon.

4001. Mr. O'Brian—Yes, as applied to the creamery?—The Copenhagen Milk Supply Co. pay 6½d. on milk. The Copenhagen Milk Supply Co. has gained importance, not only by bringing good milk to the capital, but especially by introducing children's milk and infants' milk, and still further by teaching the public to demand milk not only clean, but palatable and of good keeping quality. Thus gradually milk dealers in general were obliged to make an effort to deliver good milk in order to retain their best customers. That the public is being educated to demand good milk is evidenced by the fact that whilst the ordinary ice-cooled and filtered milk of the company is retailed at 2½d. per qt., there is a large and ever-growing demand for the Bormes milk at 4d. per qt.—both from this and similar companies. On the occasion of my visit, the number of bottles on order was 12,018, and I was informed that this was considerably below normal, as the occasion was a Saturday night, and the Sunday order is never so great as on week-days, because there is a growing practice amongst workmen and others to have this milk delivered to them at the factories and business establishments, to be taken with the midday meal instead of beer. Should the local urban authorities set up milk depots, as suggested by the Vice-President of the Department of Agriculture in his evidence yesterday, I would suggest that they might do worse than adopt the methods of the Copenhagen Milk Supply Company.

4002. You spoke about the milk from this Company being supplied to the poorer classes?—Yes.

4003. Can you tell me what subsidy this Company has from the State or taxes, or is it a philanthropic work?—The company is a commercial concern, working

for profit. It never pays more than 5 per cent. in dividends. That is one of the Articles of Association. Any profit above that goes to provide milk for the poor, or for increased buildings.

4004. It is working for a philanthropic object when it has given a reasonable return for the capital invested in it?—Yes.

4005. And it receives no subsidy from the State or the rates?—None whatever.

4006. Have you ascertained how far the profits of the Company have enabled them to assist the poor by giving this free or cheap supply of milk?—I did not get any figures, but the information could be obtained from Mr. Busck.

4007. Have you ascertained what price is paid by the Company to the producers?—6d. per gallon, free on rail. That is corroborated by Sir Rider Haggard in his book.

4008. Sir STEWART WOODHOUSE.—Does the Company pay the 5 per cent.?—Yes.

4009. Mr. WILSON.—The farmer has comparatively small expense. He has no veterinary expenses?—No, the Company pays them.

4010. All he has to do is to see that his cows are kept clean and milked in the manner specified?—Yes.

4011. The Company have to pay out of the increased price of the milk all these very heavy expenses of supervision and of insurance, and of destroying milk when there is illness in any of the families?—Yes.

4012. It is all borne by the Company?—That is so.

4013. Can you tell us what the population of Copenhagen is?—About half a million, or 400,000—nearly the same as the Dublin metropolitan area.

4014. And it is only within that area the Company deals?—Yes; but in the summer some residents of Copenhagen, when going to the seaside, based on having their milk sent to them by post or by rail.

4015. You have seen in operation the processes you have described?—Yes.

4016. I have some small experience of cooling milk, and in this country it would be a costly thing to bring the temperature down to 41 degrees Fahrenheit. Is it so costly up there?—The Company have their own ice-making plant on the premises.

4017. I am speaking now of the country farmers?—I cannot tell you, but on the Continent ice is used more generally than in this country, and presumably, therefore, it is cheaper.

4018. To use ice to bring down the temperature to 41 degrees is a very tall order?—That is the regulation, so quoted by Sir Rider Haggard. The Company have their own ice-making plant.

4019. Prof. MARTIN.—The people there would get ice from the large reservoirs?—That is so.

4020. That was where the Company got their ice before they put in their plant?—Yes, but there was a strike about five years ago among the men who brought in the ice, and the Company put up their own plant.

4021. Mr. WILSON.—I think you said this Company has been in existence for thirty-three years?—Yes.

4022. And all that time they have been, along with other people in the same neighbourhood, endeavouring to eradicate tuberculosis among the cattle?—Yes.

4023. Have the results been fairly satisfactory?—I understood so.

4024. Do you know what the effect upon the tubercular death-rate has been among the people?—I cannot answer that. They claim to have reduced the infantile mortality from 210 per thousand in 1880 to 144 per thousand in 1905.

4025. It is still very high?—Yes. In Dublin last year it was 142, and in 1906 the Dublin rate was 120 per thousand.

4026. So that there is still much to be done?—Yes, but they have done much.

4027. Mr. CAMPBELL.—I don't really think I have any question to ask, but I have twice seen what has been described by Mr. Warnock, and he has given a faithful description of what takes place. This Company is working on a gigantic scale?—Yes.

4028. The CHAIRMAN.—What is the turnover?—They dealt with about 6,000 gallons per day.

4029. Mr. O'BRIEN.—That is the quantity my creamery deals with in the summer. Do they use parchment covers?—No; they use cork, but the cork is not used twice.

4030. You said that they got 6,000 gallons per day?—Yes.

4031. Do they get an equal supply all the year round?—They provided for that in the regulations laid down.

4032. You read out that the farmer had to undertake to have certain cows calving in September?—September and October, "so that the quantity of milk delivered to the Society during the months of September and October is not less than the average quantity supplied during the first four months of the year."

4033. Is their milk supply practically the same all the year round?—Yes. They make butter of the surplus cream, and they sell a large quantity of butter-milk; there is a great demand for it as 1½d. a quart bottle.

4034. What do you mean by butter-milk?—do they make their butter by separating the cream as we do?—The butter-milk is from cream.

4035. That is practically the same butter-milk as we have in our creameries?—It is made from cream, not from whole milk.

4036. They get 1½d. a quart for it?—Yes.

4037. That is an enormous price?—They get that for it as a beverage. I pay 1d. a quart myself for butter-milk.

4038. You spoke about the temperature test; is that a test to see what the temperature is?—The temperature of each can of milk is taken immediately after being opened.

4039. Are they mostly large farms where the cattle are?—I did not go on the farms, but I understand that they are. One contained 1,100 cows.

4040. That was that particular farm for infants' milk?—Yes.

4041. The Busck pamphlet is not used by the average farmer?—No. That is only for the infants' milk.

4042. The average farmer cools down his milk with ice?—Yes.

4043. The CHAIRMAN.—Have you any idea what breed the cows are that produce this milk?—The red Danish breed.

4044. A breed peculiar to Denmark?—Yes. They have also a black and white cow.

4045. Mr. CAMPBELL.—The milk does not come from that cow?—No.

4046. Sir STEWART WOODHOUSE.—Are there any special means of keeping milk cool until it arrives at the central dairy?—The railway vans are cooled by ice.

4047. Mr. O'BRIEN.—And the carts that take it to the railway?—I don't know that.

Here is an illustration of a cart, and it looks as if it were arranged for cooling.

4048. Sir STEWART WOODHOUSE.—Are there other Companies similar to this?—The Danish Milk Supply Company is almost as large as the Copenhagen Milk Supply Company. It sterilizes its milk and sells it at a slightly cheaper rate.

4049. The other, the Copenhagen Milk Supply Company, is the premier Company?—Yes, and I understand the premier Company of the world.

4050. And it sets a good example to the other Companies?—Yes.

The CHAIRMAN.—The Commission is very much indebted to you for your evidence, Mr. Warnock.

Dr. ELIA WEBB examined.

4051. The CHAIRMAN.—I understand you are a Medical practitioner?—Yes, principally with regard to children's diseases.

4052. Do you hold any public appointment?—Not a hospital appointment.

4053. Nor any appointment under the Medical Charities Act?—I hold a number of lectureships, if you call these public appointments, and I hold appointments under charitable organisations.

4054. But you have experience of medical practice amongst the poor?—Yes, chiefly with children.

4055. Have you formed any opinion as to whether or not the children of the ordinary artisan and labourer in Dublin are getting sufficient milk?—I consider they are very insufficiently fed. They don't get enough milk.

4056. You have come to this conclusion from personal observation?—Yes.

4036. Do you think that the fact of their being insufficiently fed with milk necessarily will have an effect on the strength of their constitution and after development?—It has an immediate effect in the way of producing rickets and diseases of that nature, and a disease of that sort has after effects all through the children's lives.

4037. And there are to a large extent preventable diseases?—Yes, with proper feeding.

4038. And ordinary care. Do you think that the scarcity of milk is the result of the poverty of the parents, or inability to procure it at a reasonable price?—I think it is due to the high price of milk in reference to the wages earned by the people. When I speak of the scarcity of milk, I mean a scarcity of rich milk. The important element in milk for infants is the fat, and the people I am speaking of buy milk at the cheapest possible prices. If they find they can get it for less than 2d. a pint they will buy it at that shop, quite regardless of the fact that it is milk of a low fat percentage, and it is the effect of this class of milk on the children that produces these diseases to a great extent.

4039. Are the parents in charge of the children conscious of the evils that arise from the use of this feeding?—I don't think so. Milk is milk to a poor person, no matter what the fat percentage is. If you definitely called it skimmed milk they would understand that it was a different thing. I had personal experience of a case of a child who was persistently not gaining in weight. I ascertained from the mother that she was buying a pint of milk a day for the child. She was not able to afford more. I tried to persuade her to buy more and she could not. I found she bought the milk in a small dealer's shop which was not registered, and I thought the milk was of a poor quality. I got her to buy the milk in a shop where the milk was reliable and the child began to gain weight. That is a clear demonstration of the value of a high fat percentage in the milk for children.

4040. Do you find condensed milk largely used?—Yes, and in that lies a great danger. A great many brands of condensed milk are separated milk—skimmed milk with a high sugar percentage. On the one, if it is full milk, it is described as full milk, but if it is skimmed milk, there is not in large letters "skimmed milk," and the people consider that if they buy a can of condensed milk they are buying pure full milk, with a full amount of cream up to the ordinary standard. I have told the people, "you are buying skimmed milk," but they don't understand it. The separated and creamed condensed milk is particularly unsuitable for children, and it constitutes a great danger, as that it is considered suitable. It is used indiscriminately, and the result invariably is rickets.

4041. Have you found dried milk used as a substitute?—Very little. It is not well known, and not well accepted. I was asked when a student to make some experiments shortly after the Biscuit bread first came out, and I tried to work it with some of the poor people, but they did not see for it. They would much rather have condensed milk, I think.

4042. You have made no comparison between dried milk and condensed milk?—I think in most of the good brands of dried milk the fat percentage is fairly high. It is not, however, generally up to four per cent. Of course, an adult can drink a milk with a lower fat percentage and find it a good beverage, but for the infant, four per cent. is low enough. In cow's milk the fat percentage is low as compared with the human milk.

4043. Do you think there is a danger from the people using substitutes, not realising what their constituents are?—I do. I consider that these substitutes should have plainly inscribed on them what is the fat percentage. If they are of the same chemical composition as skimmed milk they should be called skimmed milk in words that the people can understand.

4044. Do the people realise the value of milk for growing children?—The infant comes first, but the older children are let take the run of the milk.

4045. And they don't probably realise that the milk is an essential article of diet?—As a luxury they consider it as a thing that is very good for the children, if they can afford to buy it, but they don't think it is a necessity.

4046. How far do you think the police restrict the use of milk among the people?—It is very hard to judge that. I made a calculation, that taking milk at fivepence a quart in Dublin in the winter, it would cost one shilling and sixpence a week, at least, to bring up an infant—to give the child sufficient milk—and one shilling and sixpence is a good deal out of a labourer's wages.

4047. Mr. O'BRIEN.—And probably several children—in many households there would be two or more children?—I am speaking of the child under twelve months. There is only one infant at a time, except in exceptional cases. The feeding of an infant until it is twelve months cannot be done much under one shilling and sixpence a week.

4048. Amongst the poor people, you find in many households two infants that would be the better for the milk?—Certainly.

4049. To the extent of one shilling and sixpence for the smallest?—Yes.

4050. And sixpence or ninepence for the second?—Yes, or more.

4051. So that the conscientious mother ought to give two shillings to two shillings and threepence a week for milk for the young children?—Yes, or two shillings and sixpence, and that is a very large amount for people in poor circumstances.

4052. The CHAIRMAN.—I was rather disappointed to discover that in certain districts, where milk is offered to those in more or less indigent circumstances at a greatly reduced price, they don't seem to appreciate it as they should?—I have found that also.

4053. I am afraid there must be some gross defect in knowledge?—There is. They don't realise the great importance of milk.

4054. They would not willingly deprive the children of it if they appreciated the benefit of milk?—No. I know where associations give free milk, and the women would be detected from fetching the milk on a wet day.

4055. Mr. O'BRIEN.—That is due to ignorance?—Yes.

4056. The CHAIRMAN.—It rather discounts the hope of inducing them to feed their children in a really intelligent fashion, even where the cost does not come in as an element?—That is one of the things that we hope will improve, and I think there is already an improvement.

4057. With regard to the conditions under which milk is given to children, do you find that there is much need for regulations with regard to cleanliness?—Do you mean as the dairies or in the homes?

4058. In the homes?—Yes, I do. I think a great deal of the contamination of the milk, for which the dairies are sometimes blamed, arises in the homes, and also, I think I should add, in the dirty shops, where milk is frequently retailed in dirty vessels which are absolutely open. They are not covered, and the dipper is put in time after time without being put into water.

4059. No precautions are taken to avoid contamination?—No. And in the homes milk is kept in open vessels, and in some homes that are dirty it is absolutely impossible to keep the milk clean. That also applies to condensed and dried milk.

4060. Mr. O'BRIEN.—Not so much to the dried milk?—No, nor to the highly sugared condensed milk, but quite so much to the unsugared condensed milk.

4061. The CHAIRMAN.—The poor buy milk in small shops—they go to poor shops?—Yes.

4062. And the result is that none of the precautions that are in existence in the better shops are observed in these places?—That is so. They get the worst milk and in the worst condition. They will travel a long distance for milk if they get it a farthing cheaper without knowing that the milk is a farthing worse.

4063. Is that again the result of poverty or ignorance?—Poverty to a great extent, and partly ignorance of the fact that it is the best economy in the end to buy good milk.

4064. Mr. WILSON.—In your experience, do you think there is any change in the quantity of milk that is used among the people that you are referring to?—My experience is not very long—about five years would cover the Dublin part of it, but I think on the whole

it is important. I should think it is just dispensing. I have reason to believe that general knowledge on the matter is important within the last couple of years.

4094. What price do these people pay?—They pay at the rate of fourpence a quart; that is, they buy a pint for twopence, and give a penny approximately for half a pint.

4095. Lady EVANS.—They get bad milk?—If they get it at the rate of fourpence per quart it is fairly good, but there are shops that sell it cheaper and the milk must suffer.

4096. Have you any reason to suppose that they only get skinned milk?—I have no reason to assert it, but the fat percentage in the milk is not so high.

4097. Mr. WILSON.—When you change from a milk of that class to the better class Dublin milk, you see an improvement?—Yes, in the child.

4098. So that the better class milk is the cheaper?—Yes.

4099. You have not very much fault to find with the better class milk?—No.

4100. What experience have you of pasteurized milk?—I have a fair amount of experience of it, because I am Medical Officer of the Pasteurized Milk Depot. I inspect there once a fortnight. I have not found any of the evils that are sometimes attributed to pasteurized milk. I have not found any direct case of rickets or scurvy. We have not run very long, but I think we have run long enough to discover these cases if they existed. I do not, however, consider pasteurizing an ideal method. It is only the second best method. I think the cooling method infinitely superior, if it could be arranged.

4101. What is what you would like to recommend?—Yes. If there is pasteurization it should be done on the method adopted here in Dublin. That is in the small bottle method. Bofin made experiments about that, and showed that when milk is pasteurized, or even sterilized, in small bottles, much more of the valuable properties of the milk are retained than when it is sterilized in bulk, and that scurvy and other diseases do not ensue from the use of sterilized milk prepared in this way.

4102. It appears to some of us looking over the evidence we have had, that at the present time there is a fair supply of somewhat indifferent milk?—Yes.

4103. If the quality could be improved, would it, in your opinion, be better to have a small supply of good milk, even though people use less of it, or a larger supply of somewhat indifferent milk?—That is very hard to decide. If you improve the quality of the milk and raise its price I don't think it will touch the lower classes at all—I don't think they can pay more than they are paying.

4104. Mr. CAMPBELL.—I was rather interested in what you said about the condensed milk. You do not condemn condensed milk?—Condensed milk has all the elements of sterilizing, which is going one worse than pasteurizing. That is to say, condensed milk used for a long period without the addition of fats and anti-scorbutics should be condemned. Condensed milk is a very good thing in epidemics of summer diarrhoea, or an epidemic of typhoid, or when milk might be contaminated.

4105. I am bound to say that heretofore it has not got a good character?—I only advise people to use it for a short period.

4106. Is it non-sugared?—Most of the brands are highly sugared. The only condensed milk that you could consider at all fit for children is the non-sugared full milk.

4107. There is not much milk in Dublin containing above 84 per cent. of fat?—Not much.

4108. Very little; in fact, the bulk of it is below that. Do I understand you to say that that is not sufficient for children?—Certainly not for infants up to the age of twelve months. The addition of cream with the best cow's milk is advisable to bring it approximately to the equivalent human milk, which contains six per cent. of fat. In the case of cow's milk, I think four per cent. is fairly good, but five per cent. is better. Of course, if the people understood that the fat could be supplemented by means of cod liver oil and various substitutes it would be better.

4109. Would you give cod liver oil to very young children?—Yes. I always use it if I have to advise condensed milk. It is the best milk-shift you can get.

4100. Prof. MARSH.—You give it as an emulsion?—Yes, or in small drops. You cannot give fat indiscriminately to infants. We are not speaking of ideal preparations for children, but of the best we can get.

4101. The CHAIRMAN.—What was the economy of substituting cod liver oil?—Because the poor people get it for nothing at the dispensary. If they had to purchase it, the economy would not be very much—not very appreciable. They can get cod liver oil for nothing at the dispensary, so that it is the most convenient thing to add to the condensed milk, and that is the thing I order. I do not hold it up as an ideal substitute, but when they are using milk that has not fat in it one has to try and get in the fat some way.

4102. Mr. CAMPBELL.—I have used cod liver oil very successfully as a substitute for fat in rearing calves—I was not aware of that. The people understand that if the child has rickets it is well to have cod liver oil, but they do not think rickets could be prevented by this.

4103. Prof. MATTAM.—Will the use of fats prevent rickets?—I think so. Blaud Sutton made experiments with the young lions in the London Zoo and showed that the essential foodstuff in the prevention of rickets is fat.

4104. I did not know that the use of fat would act as a preventive. Do you associate indurated diarrhoea with dirty milk?—Partly, but not entirely. I consider a great deal of it arises from the habit of children picking up dirty things on the floor and licking them, and dropping their cookie on the floor and sucking their fingers. I am being led to the opinion more and more every day that infantile diarrhoea does not arise entirely from the milk. I have known it to arise even in private cases in which every possible care was taken with the milk.

4105. Milk dotted out in small portions is more likely to be dirty than milk sold in bulk?—Yes; the more it is handled.

4106. Exposed?—Yes, that is why the bottle-milk is such an advantage, even without pasteurization, if the bottle is clean. If milk is subjected to a high temperature two things happen—a ferment is destroyed, and also a certain amount of casein, phosphates, &c.

4107. Mr. CAMPBELL.—You are anxious to keep these in the food?—Yes.

4108. Mr. O'BRIEN.—You work a good deal among the poor?—Yes; I have a dispensary in a very poor part in Dublin.

4109. Are most of the infants fed at the breast?—A large portion.

4110. For how long?—Almost up to a year. In that way we compare very favourably with English cities.

4111. Do the mothers during that time get a plentiful supply of milk for their own feeding, or do they live like other women on tea?—Largely on tea.

4112. They do not realize the importance of good feeding?—The mother with a family will never feed herself first; she won't consider how important it is to the young infant at the breast that she herself should be well fed. She will feed the children first.

4113. It is very important, if they are nursing a child, that they should get a good milk feeding themselves?—Milk as milk is not a particular necessity if they get a sufficient amount of meat and fatty food. Outward porridge improves the quality of the mother's milk. I do not think milk improves the quality of breast milk very much—that is to say, that soups containing the same percentage of proteins would be as good.

4114. Mr. CAMPBELL.—Skimmed milk would be a good food?—The mother requires fats too.

4115. It contains all the proteins?—Yes, but not the fats.

4116. Have you any views as to the value of separated milk as a food?—I think for adults it is very good, but not for children.

4117. It is good food for adults?—Yes, but not for children.

4118. Mr. O'BRIEN.—On the matter of the condensed milk in tea, you said, I think, that the condensed separated milk was not labelled as such?—I do not say that it is not labelled as separated milk, but these words convey nothing to the poor people.

4119. Because I have noticed lately cans and tins with the words "condensed separated milk" put on them?—Yes.

4120. It was not so a few years ago?—Perhaps that is so, but the words "separated milk" do not convey a sufficiently clear idea to the poor. It should be called *sterilised milk*, and they would understand it.

4121. That is a matter for education?—Yes.

4122. Tell the average small artisan or labourer—a man earning the average wage, and who is a good husband. He allocates each week so much for the bread, tea and sugar, and a certain amount for butter and bacon. He gives out to the wife, as a rule, a certain amount for the provisions for the week. If he is a man that is particularly good to his family, he only reserves a small percentage for tobacco, and gives his wife the rest; he keeps so much himself and hands over the balance to his wife, who arranges about the paying of the rent and buying the provisions. What I wanted to get at was, if the men of the house were to realise the food-value of milk for his children, would he be likely to put it on a list with the things that were required for the week?—I do not think they specify what the wife is to buy.

4123. No, but the wife says, I want so much money to buy house things?—I think the wife says, "how much will you give me," and then she makes the best of it. The husband does not interfere with regard to the purchases. He grumbles if she does not have his dinner ready, but otherwise he does not interfere. I have known a man to insist that his child should be sent to the pasteurised milk depot, but that is an unusual case.

4124. Is the matter of rickets in children, has it ever been known that a child brought up on the best has got rickets?—It is known, but it could only be if the quality of the breast milk is poor.

4125. There again it is the loss of fat?—Yes. Of course, rickets is caused by want of fresh air.

4126. Prof. MINTAM.—It is occasionally congenital?—I do not think you often find that.

4127. Sir STEWART WOOLHOUSE.—Do mothers, as a rule, know how to prepare the cow's milk so as to make it suitable for infants?—They do not. That is another point on which a great deal of ignorance exists; but that is improving now, I think. On the whole, they are more likely to over-feed infants than to under-feed them. They do not dilute the milk sufficiently; but that is improving.

4128. They give it in a bottle with a rubber nozzle?—There are some long tube bottles, but they are going out.

4129. Mr. WILSON.—You would like to make them illegal?—Yes.

4130. Sir STEWART WOOLHOUSE.—Have you seen a disease from using impure milk such as scrofula glands?—In many cases it often does bring that about, but it could come otherwise. You could not be certain that the infection comes from the milk. I think it is very often the channel of infection; but you could get it from breathing contaminated air, etc.

Mrs. M. J. CHURMAN explained

4131. The CHURMAN.—You are interested in the Women's National Health Association I understand?—Yes. I have been working with it for some time, but I was interested in the subject of milk before the Association started.

4132. You have a wide knowledge of the conditions under which the poor live in your own immediate district?—Yes, in the neighbourhood of Trim and in the County of Meath generally.

4133. Have they any difficulty in securing a supply of milk for their children?—In some parts, yes; in other parts, no; but mostly there is a deficiency for two great reasons. When the eleven months' system came in, there was no grass obtainable in the summer for the cows, and that rather discouraged people from keeping cows in the winter time as well. When they got grass in the summer time for a cow they managed to keep her in the winter. That is practically gone now, and the people who have become owners of the grass lands have raised the price of grazing in the summer from £3 to £6 10s. an acre, which is a prohibitive price for a poor man. I think the great scarcity of milk also comes from the fact that the farmers are not buying as good cows as they used to. They rather pride themselves in the old days on having the best milker. Now, when a man has a good milker, he is offered such a tempting price that he sells her for £18, £20, or £22, and buys instead a cow for £10 or £12, which will not give a quarter of the milk. Their present supply of milk is reduced, and they have not got the milk which in the other case they would give to their farm labourers who have no cow. You cannot induce the man to keep a good cow. They will sell her and buy an inferior one. I think the shortage in the supply of milk is in many cases due to that. If we could only induce the people to go back to the old system of keeping the good cow there would be a big improvement.

4134. To what do you attribute this peculiar change?—The price they can get for the good cow. There is such a tremendous demand for them that they can get high prices for their milk cows.

4135. It seems economically unsound, this new system. Do the people realise what they are doing?—It is absolutely impossible to induce them to retain their good milkers. I had rather a fight with men at home near me to try and make them keep good cows.

4136. They sell them for no other reason than that they can get rather good prices for them?—Yes, and they buy a cheaper cow instead. One man said, "I can get a cow for £18, and she will do me just as well." He told a good cow and bought an inferior one that gives him little milk, and that is of a poor quality.

4137. Have they pressing need for the money?—Not more than ever. Eggs and butter and everything like

that, they want to sell. It is want of proper education.

4138. The education seems to be going on in the inverse ratio?—Yes.

4139. With regard to the children of that district, do you think that they suffer constitutionally from the way in which they are brought up by their mothers in their early infancy?—In the very poor cases, like in the towns, they have no milk at all. They buy some condensed milk.

4140. Even down with you in Trim?—Yes, in the town. I was trying to induce them to buy the dried milk.

4141. What is the price of milk in your district?—It is 7d. a gallon, I think, but I am not really sure. I do not exactly know the price. The people think it is too dear.

4142. Prof. MINTAM.—What pains will they give?—They buy a pennyworth. They get about a pint for that. It depends on if they are good people whether they will sell it.

4143. The CHURMAN.—What does around supplies Trim?—Trim is only supplied by one man, who has a farm near the town.

4144. There is no competition with him?—None whatever.

4145. Does he charge a high price?—Yes, he has a tremendous demand for his milk, and he can charge what he likes.

4146. It has been suggested that the Local Authority might be empowered to secure land on the confines of the town for the purpose of enabling them to erect on a dairy to supply the inhabitants with milk. Do you think that would be workable?—Yes, it has been done. It is the only way out of the difficulty in our county.

4147. Do you say it has been done?—Yes, in Kells. The District Council have taken land and they are setting it to the poor people for the grazing of their cows.

4148. The scheme I refer to would be different. You are referring to Father Barry's scheme?—Yes.

4149. This suggestion is different; it is that the Local Authority should be empowered to obtain lands compulsorily to supply milk to the people of the towns?—I do not think it would work. I think the other is better. It is better to let the poor people have their own cow. Your scheme would institute a dairy—the District Council would have the cows and sell the milk?

4150. Yes.—That would be a difficult scheme to work.

4151. There is this disadvantage about Father Barry's scheme, it is not possible everywhere to secure land by purchase, as in Kells. There the land was being divided, and the Estates Commissioners co-operated with the Local Authority in reserving a certain portion known as "the cow plot." That is only feasible and practicable where the land is being divided. You have not reached

that stage in Trim yet?—Not yet, but it is coming, I suppose. The scheme you suggest would take a tremendous lot of money. I think it would be a difficult plan.

4152. Do you think the supervision would be troublesome?—Yes, you would have so many officials. The officials would take half the value of the cows. They would take all the profits of the milk, and the milk would have to be as dear as under existing conditions.

4153. Consider the advantage of having a milk supply available for those who could afford to buy?—That would be good enough in the town, but how are you going to assist the people in the country who have not the milk.

4154. That is another aspect of the question, but I am hoping that that difficulty is not insuperable?—You cannot have that all over the country.

4155. No. Do you think that there are a fair number of cows that are suffering from tuberculous affections and other maladies that make their milk a danger?—I think these are. I think inspection is very badly wanted.

4156. Would you suggest that the Local Authorities should be vested with power to inspect all cows producing milk, whether the milk is sold or not?—Yes, I think every milk cow should be inspected. There are lots of people who own cows and have milk of their own. They give portions of this milk to the poor, and it is not only the cows of people who sell milk that need inspection, but every cow needs it. If you go to the Dublin market on Thursdays you see lots of the most awful looking animals anyone ever saw, and it is a shame the number of diseased cattle that are allowed to be sold. I think it is a great shame that diseased cattle should be sold at all. I think they ought to be destroyed and buried.

4157. Prof. MERRILL.—Who would pay for that?—Let the man who bought them and made the mistake suffer for the loss.

4158. The CHAIRMAN.—It has been represented to the Commission that the relations subsisting between employers and employees have changed considerably in the recent past, and that that in some degree is responsible for the scarcity of milk amongst the labourers?—That is a fact. Long ago, to nearly every man you had in your employment, you gave grass for his cow in the summer, and he managed to keep his cow in the winter; but now it is impossible for a poor man to keep a cow all the year round. We always gave them grass for their cow, and do so still.

4159. The suggestion offered to the Commission is, that the spirit of independence between the employer and his employee has in some degree retrograded the friendly feeling that had existed between them when economic conditions were different. Is that true?—It may be in some cases.

4160. Is it true in your own district?—No, in our own district it is not so, I think.

4161. Mr. CAMPBELL.—Have you Union cottages?—Yes.

4162. The CHAIRMAN.—You do not regard that as a case whereby milk is less available for the poor than it was, say, twenty or thirty years ago?—Not in my district, as I have said. They cannot get grazing for the cows. The owners of land have raised the price of grass.

4163. I wanted to know whether this was a factor in your district?—No, not a bit of it.

4164. I was extremely pleased to hear it, because I should very much regret it?—It is not the case with us at all.

4165. You think it is rather as a consequence of the increased prices charged for grazing that the number of cows kept has been restricted?—Yes; many owners will not give the grass at all at any price.

4166. Mr. O'BRIEN.—Why?—I do not know.

4167. The CHAIRMAN.—Are these farms let on the eleven months' system?—No.

4168. Even where the land is managed by the occupier they now refuse to follow the custom of allowing their labourers grass for a cow?—Yes, they will not even give it to their herds. It is a terrible state of affairs where the herd will not get the grass of a cow. I have seen men with six hundred, seven hundred and a thousand acres, and they will not give their herds grass for a cow.

4169. That is an entirely new condition?—That is so.

4170. That is the cause of the scarcity of the milk, and it is led up to by no action of the labourers

themselves—I mean they have not become estranged from their employers?—They have not. New people come in and they have rules of their own, and they are not poor men either. They are gentlemen.

4171. It is a new spirit that prevails among the occupiers of lands?—Yes.

4172. Is it not very desirable?—Indeed, it is not. 4173. Lady BRYAN.—It is most unusual for the herd not to get grass for his cow?—Most unusual. Until Saturday, when collecting evidence, I had no idea that the state of affairs was so bad. I thought that at least every herd had grass for his cow.

4174. Mr. O'BRIEN.—In my part of the country there is a strong prejudice against giving herds grazing for a cow, because they say that the herd's cow gets the best of the grass and of the food?—If you want to get cattle well fed, you should turn them into the field where the herd's cow is, and they will be better fed than any other cattle; but you have got to put up with that.

4175. This particular area you referred to is not a creamery district?—No, there are no creameries at all. There are ten times as many calves reared in Meath now as there were ten years ago.

4176. That also tends to the scarcity of milk?—Yes, and there is difficulty of getting grazing. Long ago poor people used to get some milk or buttermilk, but now they feed their calves with it. They do not churn, and there is hardly such a thing in the country as buttermilk. They buy the butter and they feed the calves on the milk.

4177. Do even the small farmers of twenty or thirty acres follow the same practice and refuse to sell milk?—They all refuse, because they have got the idea that if they sold milk they would become liable to inspection. They will not have inspection. They may give a little to a poor neighbour with children.

4178. That has operated as a factor to prevent their selling the milk?—They do not want to be registered?—Yes.

4179. Because they fear the local inspector might come to their place?—Yes. I know a case where this occurred. A man who has a good cow used to sell milk, and when this Order was passed he refused to sell any more.

4180. Lady BRYAN.—Do you find the Order is efficiently administered in your district?—I cannot really answer that question. I think the inspector does his best, but I think they are in rather a difficult position.

4181. We have had evidence that if a stronger measure it would be more effective?—Yes; he should be absolutely independent of the District Councils or County Councils or other local bodies. He should be absolutely independent of any control except the Government.

4182. A Central Authority?—Yes. Having any kind of inspector under a Local Authority is absolutely nonsense.

4183. You think it has not led to efficient administration of the Order?—No, it has not.

4184. Mr. CAMPBELL.—With regard to the relations that exist between the labourer and the farmer, have you many Union cottages in your district?—An enormous number.

4185. Do the occupants work with the farmers?—Yes.

4186. Where did they live before they got the cottages?—The greater number lived in the neighbourhood and were working on the farms on which the cottages are erected, or very close to it.

4187. But they formerly lived in a cottage on the farm?—Generally.

4188. In the past, did the farmer supply his labourer with milk?—He used to do many cases to give him grass for a cow.

4189. Now the labourer is given into the Union cottages?—Yes.

4190. And the farmer says, "you can get your grass somewhere else"?—Yes.

4191. You refused to what is being done at Glenties in having a commonage for cows?—Yes.

4192. Do you think that is a good system?—I do.

4193. Would it not be equally possible to get a commonage for the tenants of the Union cottages?—Yes.

4194. So that it is not necessary that that question of commonage should be confined to the urban labourer?—No.

4195. This could be done in any other place where there is a large number of labourers?—Yes.

4196. Those are the people who are the worst off for milk?—They are.

4197. Would you be in favour of some system, by co-operative means or any other, by which a commonage should be got for those persons in the Urban cottages who are not regularly and constantly employed on the farm?—Certainly. That is badly wanted—to get goats for their cows. They have an acre of land with their cottage, and they could grow roots for the cow for the winter.

4198. Do you know any other part of Ireland where the labourers' cottages are abundant?—No; in Galway they would not have them at any price. I think we have more in our Union than in any other Union in Ireland.

4199. What is your opinion with regard to the goats?—I am all for the goats. Every man should have a goat or two.

4200. Have you thought out the conditions that should be imposed on persons keeping goats?—Well, the only condition is that the goats should be tethered a certain distance. Then my goats do a lot of harm. We have lots of goats. We have eight or nine goats, and on every field in the town there is a goat. My husband has a farm in Galway, and there are over thirty goats on it. They do not do all the harm that is said.

4201. Has your husband any objection to the goats?—No, not the least.

4202. Do they come into your garden?—They will not get in.

4203. If your garden was not well fenced?—That is your look out. People should keep their fences and hedges in repair.

4204. Do you think that the half acre attached to the Urban cottage would be sufficient for the goat?—They get an acre altogether. My father was a tremendous man for milk for the people. He gave grass to the labourers and isolated on his neighbours doing the same, and they had to give it. Long ago there was milk and he made the people keep goats, which he said were the poor man's cow.

4205. I suppose that was the ordinary goat which was used?—Yes.

4206. What was the ordinary quantity of milk given?—A good goat would give about a cup and a half of milk—I mean a breakfast cup.

4207. About a pint?—Yes, or rather less.

4208. Mr. CHAMBERLAIN.—That is twice a day?—Yes, that is the average.

4209. That is very little?—Yes.

4210. They are not getting any special feeding?—No, and they are not a special kind of goat.

4211. Have you ever known anyone feeding their goats well—giving them grass and roots and feeding the quality of the milk?—Yes. I went into a cottage to-day when my motor car broke down, and I spoke to the woman about her goat. She told me the goat is giving over half a cupful now, and that she gave more in the summer when she was feeding it.

4212. Have you any experience of tending a goat as you would a cow?—Yes, would get more milk if you did so.

4213. How long do they continue milking?—Sometimes up to seven months, if you feed them. I am trying to improve the goats with the Anglo-Nubian, that will milk for nine months, and you can get about four times as much milk from them as you would from the ordinary goat.

4214. Are you speaking from experience?—Yes.

4215. Have you a pure Anglo-Nubian?—Yes.

4216. Have you any experience of the cross?—No.

4217. There are several in that neighbourhood who have the cross?—Yes.

4218. And they milk better than the ordinary goat—the cross between the Anglo-Nubian and the native goat?—If you can get a good milking breed of goat and cross her with the Anglo-Nubian, she is nearly as good as a cow, and she milks for nine months in the year.

4219. Have these Anglo-Nubians better manners than the common goat?—I do not say that any goat has bad manners, if managed properly. If you let a cow on to the road she will do as much harm as the goat. We have wide margins to the roads, and there are lots of places to tether them.

4220. You drive a motor car?—Yes, and the goat is the one animal that never gives me any trouble. They are over the ditch before you can get near them.

4221. Mr. O'BRIEN.—You have never seen goats lying down on the road asleep?—No.

It is the position in some places, I have ridden over a goat on a bicycle myself.

The CHAMBERLAIN.—The Limerick goats must be very indolent.

4222. Mr. CHAMBERLAIN.—As you have some experience of goats, what would you suggest is the best way to encourage the labourers to keep goats—how would you set about it?—The right way is to have stations, as we improve the breeds of fowl in the neighbourhood. That is what I am trying to do in our own district.

4223. Do you think it would be possible to improve with the native goats?—Yes, if you could get a good milker and cross her with an Anglo-Nubian.

4224. I mean crossing with the common goat?—I do not think you could get common goats who milk so long.

4225. You are aware that we cannot get Anglo-Nubians?—It might not be very difficult.

4226. Where could you get them?—From the North of Ireland. I could supply three or four.

4227. I have been engaged in sending them to the North. We cannot get enough of them for the North?—They will have to be bred.

4228. Have you got any pure Anglo-Nubian male goats?—Yes.

4229. What is the price of them?—They are not for sale. They are for my own district.

4230. Do you think you could get up a local association for breeding goats?—I should think it would be very easy.

4231. Do you take any interest in the Agricultural Shows?—Yes, I do.

4232. Have you any prizes for goats there?—Yes, rather.

4233. Do you find that doing any good?—Not yet, it has not caught on yet.

4234. How long have you been trying?—Two years. We give prizes for the best milking goat.

4235. How do you judge them?—By milking them.

4236. How do you know when the goat was last milked?—We are not told that.

4237. Then the milking is not of much value?—We cannot help that. But all the people who compete have the same chance. We do this to encourage the poor people to keep goats. We simply give the prizes for the best milking goats.

4238. Mr. O'BRIEN.—I wanted to try and get the price of the milk at Trim?—I am busy on that point. I will find out and send you the information. It would be important to have the right price. It cannot be 7d.

4239. You referred to the cows in the market?—Yes, I think the conditions they are in when milked is scandalous. You will find that in any fair.

4240. Do you mean that the people can go up with any sort of bin, and get the milk of the cows for sale?—Yes, when the cow is sold. They bring home the milk, and if you see the things they bring it in you would be surprised. It is the same in any fair. The cow may not have been milked for two days, and the poor people drink the milk. It is terrible.

The CHAMBERLAIN.—That happens to a large extent in the Dublin market.

4241. Mr. O'BRIEN.—In the average country fair the cow has been milked the evening before?—You are very honest in Limerick if that is so.

4242. What is the object of not milking the cattle for a couple of days?—To give the udder a bigger appearance. It is terrible the Society for the Prevention of Cruelty to Animals does not interfere in this matter. I know that last year we bought a cow in the Dublin market and the milk was not fit to use for nearly four days.

4243. The CHAMBERLAIN.—You think that was due to overstocking?—Yes.

4244. Mr. O'BRIEN.—Do you think that is the custom in the small local fairs?—It is the custom all over Ireland.

Prof. MERRILL.—All over the world.

4245. Mr. O'BRIEN.—I know that in certain places where the people have a temperance tent, they get the milk for nothing from the people in the fair?—I would not care to go into the temperance tent and drink the tea. The owners allow poor women in the country to milk the cow when it is sold, and these people milk in the most filthy vessels—in cans and empty machine tins. It is horrible that such a custom should be permitted.

4246. Could not the Inspectors of the Society for the Prevention of Cruelty to Animals prevent it?

The CHAIRMAN.—They could in Dublin.—You would want a special inspector.

4247. Mr. CAMPBELL.—I see cows coming down from the Dublin Market and their condition is execrable. No one seems to take any interest in them, and the poor cows are suffering?—It was said to me that the custom must tend to spread disease.

4248. Sir STEWART WOODHOUSE.—Is the number of goats increasing in your district?—There used to be more.

4249. Why did they decrease?—The people who had the food objected to them.

4250. On account of the damage done?—They said they injured the hedges. They will not injure a hedge unless it is very young.

4251. There is no prejudice against goats' milk?—No, the people value it very highly.

4252. Is there a prejudice in Galway to the milk?—No, they like the goats' milk.

4253. Do they eat the kids?—No.

4254. Prof. MERRAY.—What about the milk of goats—is there much difference in the flavour compared with cows' milk?—It is richer.

4255. Is the taste for goats' milk an acquired taste?—It is in a way.

4256. The CHAIRMAN.—Do you ever use it in your own house?—My boy drinks goats' milk every day.

4257. And you have no difficulty in getting him to drink it?—He loves it, and will not drink cows' milk. The poor people prefer it in their tea to cows' milk. It is like cream; it is richer than cows' milk; it is the very rich cream in the tea.

4258. Mr. CAMPBELL.—Is the flavour due to the smell of the goat or the natural qualities of the milk?—I think goats eat more herbs than cows.

4259. If the goat was kept clean and well groomed, and if the person who milked it did not touch the skin to get the smell, could you tell the difference between goats' milk and cows' milk?—Oh, yes. The Anglo-Norman is not so much different as the native Irish goats' milk from the cows' milk.

4260. Prof. MERRAY.—Every milk will have a peculiar flavour according to the animal producing it?—Yes.

4261. There is an intrinsic flavour about the milk due to the animal producing it?—Yes.

4262. Mr. O'BRIEN.—You have a great number of labourers' cottages occupied by labourers who formerly lived on the farms?—Yes.

4263. Do the farmers there often find any difficulty in getting these labourers to work for them because they have an independent cottage and perhaps an acre of land?—No, because they mow the acre of land and put nothing into it. The difficulty is to get them to till it.

4264. The reason that the farmer ceased to give them their grass is not because the labourer says, "I will not work today because I have to dig my potatoes"?—No. When the farmer had the labourer working he gave him potato ground. Now he gives him nothing.

4265. Mr. CAMPBELL.—Because he got his independence?—Yes.

4266. The farmer says, "You can make the best of your independence"?—Yes.

4267. Prof. MERRAY.—The old associations between the farmer and the labourer are lost?—Yes, the whole system is changed.

The Commission then adjourned until the 25th January, 1912.

THIRTEENTH DAY.—THURSDAY, 25th JANUARY, 1912.

The Commissioners met at No. 5, Upper Castle Yard, Dublin.

Present:—P. J. O'NEILL, Esq. (Chairman); LADY EVERARD; MISS MARGARET McNEILL, Sir STEWART WOODHOUSE, M.D.; GEORGE A. MOOREHEAD, Esq., F.R.C.S.I.; ALICE WILSON, Esq.; DERMOT O'BRIEN, Esq.; JOHN R. CAMPBELL, Esq., B.Sc.

S. W. STRANGE, Esq., Secretary.

Mr. S. KENNEDY examined.

4268. The CHAIRMAN.—You are a large landowner and feeder of cattle in Co. Dublin?—Yes, in Co. Dublin and in Kildare.

4269. May I inquire, do you purchase your own stock?—Almost entirely.

4270. And, of course, that gives you a wide experience in visiting the various fairs?—Yes, principally in the South of Ireland. I may say principally in the creamery districts.

4271. Have you been engaged in this occupation for a considerable time?—Yes, for over thirty years.

4272. And that would give you an opportunity of comparing the class of stock now exhibited for sale with those that were offered, say, thirty years ago?—Yes, absolutely.

4273. Have you formed any conclusion as to whether or not there is a marked change in the class of stock offered in the fairs of Ireland during your experience?—I have. I am talking now more in relation to the South than the West of Ireland. They are the same now.

4274. And with regard to the South what is your experience?—My experience leads me to the conclusion that the cattle have deteriorated in conformation and constitution.

4275. To the disadvantage of those of the present day?—Yes. Thirty years ago the tuberculosis—or "pining" or "asthma" as they were called—were practically non-existent. The first tuberculous animal I saw was

in 1888. I can recollect the animal even now. Unfortunately I bought it, and I watched it gradually declining in health.

4276. Do you feed a large number of shippers now?—Yes; perhaps last year I fed less than usual, because one has to allow a tremendous margin for loss, mostly due to tuberculous disease.

4277. Do you purchase these shipper cows yourself?—Yes.

4278. And in the districts where the creameries are in operation?—Yes.

4279. There is, you think, a direct connection between the cows you purchase and the cows that are used for supplying the creameries?—Yes. The shipper is a cow that has been milked for six months. When her term of milking is nearly over she is sold to people like myself who fatten cattle.

4280. Can you tell the Commission what proportion of these cows have proved to be tuberculous in the last five or six years?—I am afraid about four per cent. within the year would suffer from tuberculous disease. I should say last year it was quite four per cent.

4281. Of course, these cows when bought by you after their milking period would be in low condition?—Sometimes they would. Those you buy in the autumn are in good condition.

4282. These are cows that might be pastured on good lands during the summer?—Yes, I am very careful about buying them, and you have a good selection of well-fed cows to purchase from.

4283. I was just suggesting that the difficulty of determining a cow with a tendency to tuberculosis would be much greater when all the animals are in low condition?—Yes, and no matter how careful you are you get a certain proportion of them. Some cow-keepers have given up buying solely on account of the loss they sustain, the increase in the amount of tubercular cattle has been so great.

4284. Would you be good enough to tell the Commission whether you consider this an increasing loss, and whether the number of cows that develop tuberculosis is increasing steadily?—Yes, without any manner of doubt. I see them in large numbers in the fairs. They are called "plumers." They are bought at very low prices, and no doubt they come into human consumption for sausage meat.

4285. Notwithstanding that the most pronounced types are eliminated from the herd, and that you buy what you consider sound animals, you find that about four per cent. of these will develop tuberculosis during the following period?—Yes, from three to four per cent. It was fully four per cent. last year.

4286. Can you tell the Commission the number of cows that you are exposed that are visibly suffering from tuberculosis?—I think the percentage would be from seven to eight.

4287. Apart from what you bought yourself?—Yes; we will say six per cent. in order to be under the mark.

4288. Previous to the introduction of the creamery system, you had been in the habit of purchasing animals that were used in the Co. Limerick and Co. Cork dairy herds, and you found that up to twenty years ago they were almost immune from tubercular disease?—It might have been luck, but I never bought one suffering from tuberculosis until 1888, though I had experience for nine or ten years previously. Before the creamery system was established in Limerick tuberculous cows, or plums as they are called by the country people, were practically unknown. Now there are a large number of tuberculous cows in the creamery districts.

4289. Have you formed any opinion yourself as to the causes that have led up to the spread of this disease?—I have. I think there are several causes. I really think in the case of the poorer and smaller farmers that some of their cows are diseased to such a degree that the milk of such animals is full of tubercular bacilli, and when such milk is mixed in the creamery with the sound milk, that both the sound and the unsound milk becomes tainted, and the separated milk is handed back to the supplier for the feeding of calves.

4290. What I was anxious to know was, had you formed any opinion in your own mind as to the causes that had led to the increased number of tuberculous animals to be found in the fairs?—The separated milk is one cause.

4291. You connect the dissemination of the tubercle with the use of the separated milk which is sent back to the cow-keepers for the feeding of the calves?—Yes, at about 3d. or 4d. per gallon. I purchased one cow last year for a shilling, believing her to be perfectly healthy and well. In two or three months she calved, and in a month after she was dead. What state would such a cow's milk be in?

4292. Did she produce a healthy calf?—A small calf.

4293. Did it survive?—No, I am afraid it died, but I do not attribute the death of the calf to tuberculosis. It was not from that it died; it was from another cause.

4294. You spoke a moment ago of some of the small farmers buying cows in perhaps a poor condition, and some of these are exhibited for sale at the various fairs?—Yes.

4295. Do you think that there is a regular trade in these animals at a very low price by those who deal in them, crowding the animals to be at least suspicious?—Yes, I will give you an instance. At the November fair at Pollen, near Limerick Junction, one of those men that buy tuberculous cows at the fairs told me that he had bought a fine sound cow, and that I ought to purchase her from him and give him a small profit, and added, "What is the use of me taking her for sausage meat." He made no concealment about his trade at all.

4296. There is no doubt there is a recognised trade at the fairs in cows that are believed to be unsound?—Certainly there is. They call these cows "plums."

4297. Have you any information as to what becomes of them ultimately—are they kept in the country?—They are slaughtered at once.

4298. And you have no reason to believe that their flesh is offered as meat in the ordinary way by low class butchers?—I am rather inclined to think they go to make sausages. They are sluded to in the fairs as being used for sausage meat. There was a Belfast veterinary surgeon who stated that such animals come in very large numbers to Belfast. He said they come from the Dublin market, and the Public Health Authorities in Dublin held a meeting of the salesmen. They examined Mr. Carter, who said that the Irish cattle were quite as healthy as any others, and that he had only two per cent. diseased. I could not say that there were no visibly tuberculous cattle and I left the meeting. A gentleman mentioned to me that I had left the room. I said "Yes, I could not make any statement that there was no tuberculous disease among cattle," and he stated, "The only request I made was, that little boys should not be allowed into the Dublin markets to milk tuberculous cows." That was his one request, and that request has not been carried out.

4299. The attention of the Commission has already been directed to this particular thing—the milking of the cows in the market after the sales, and bringing the milk away in vessels that are distinctly unclean?—It must be a source of certain danger that these cows are in the Dublin market, and that boys about nine or ten years of age go with vessels and, no doubt, take this tuberculous milk. There are not many of them exhibited in Dublin, they are hidden away, and I do not think any Inspector could find them all out, and if he did he would probably get the answer that they were for some purpose. These animals are never sold, in my opinion, for milking purposes.

4300. They are wanted in appearance?—Yes; sometimes they are in a very emaciated state, with the hair falling, and they are easily noticeable in a fat cattle market.

4301. Have you ever noticed in the Southern Districts an officer representing the local District Council making an inspection of the animals that were exhibited for sale at the fairs?—Never; I have never heard of such a thing.

4302. So from your experience there is practically no inspection exercised by the local authorities for ensuring that the animals exposed for sale are sound or healthy?—I have never heard of it. Of course, the Inspector may be there, but if he had no distinctive uniform you would not recognise him.

4303. Does any other cause come to your mind as leading up to the fact that there is, as you state, an increase in the number of tuberculous cows in the dairy districts, apart from the distribution of tainted milk?—The system in Limerick is leading to it. They are keeping the cows in small houses and letting them out into small paddocks, where the animals stand practically all day long drooping with cold, and they go back into rather ill-ventilated houses.

4304. I have actually remonstrated myself with dairy farmers in Limerick about the same practice?—I think we all leave our cows out too long. I found in my own case better results if you leave them out less.

4305. I quite agree. I recently tested it myself, and I found a distinct advantage in keeping cows housed in bad weather?—Yes. If a head once becomes impregnated with disease I can imagine these paddocks full of bacilli.

4306. I can honestly say that I have seen them kept in an absolutely revolting condition in the paddocks you refer to?—Yes.

4307. Have you bought cows outside the creamery districts?—Yes, and I think it would be hard to Winklow or Kildare to find any tuberculous cattle.

4308. Do you think that the creameries we have been discussing with regard to the in-calf cows has an effect on the tuberculous calves?—I am afraid I am not scientific enough to give an opinion on that, but I think it would. Most of the in-calf cattle in Limerick are heifers, and they are out all the winter, for the most part. They are not housed at all. The animal is left out in the winter, and looks perfectly healthy. I have never seen any of the in-calf heifers showing any visible signs of tubercular disease at all.

4309. Do you think that the dairy inspector is a useful officer?—He must be, if he does his duty.

4310. Are you speaking of the dairy inspector employed by the Union or the Rural Council?—Any inspector of dairies must be useful if he does his work.

4311. Have you any experience of the manner in which the duties of the inspector are discharged in the rural districts?—No, except with regard to the veterinary surgeon in my own district, and he does his work well.

4312. Would you be in favour of having dairy inspectors qualified veterinary surgeons?—Yes.

4313. Do you think it would be a greater security to the public health?—Yes, and I think he would be in a far more independent position than the man who may have local interests.

4314. I presume you have not made any inspection of the creameries in the creamery districts to see how the milk is treated?—I have been through some creameries, but it must have been in the early '90's or the late '80's.

4315. Were you favourably impressed with the condition of these buildings?—Any I saw were kept exceedingly well and cleanly.

4316. And you believe there is no reason to suppose that they were not scientifically and economically managed?—I did not dream of it at the time.

4317. You had no reason to complain of what you had seen?—The creameries that I saw were very well managed and cleanly—any that I inspected.

4318. Lady RIVERMAN.—Is it your opinion that the cause of the increased number of animals suffering from tuberculosis is that the calves get infected by the separated milk that is returned from the creamery?—That is my opinion.

4319. The CHAIRMAN.—And these calves are kept for dairy purposes when they develop?—A certain number of them are. The females, of course, are. Only a certain percentage would be raised in the creamery districts.

4320. Dr. MCCORMACK.—In districts outside the creamery area do you find the cattle healthy?—I find no increase in the disease.

4321. Would you say that the cattle have improved in these districts?—My opinion is that in no place in Ireland have the cattle improved except in the extreme West and in parts of Kerry. The Aberdeen Angus has done a certain amount of good in the West of Ireland.

4322. With regard to the practice in the Dublin market of little boys milking the tuberculous cows, I have noticed that in our markets in the country the little boys use very satisfactory vessels?—Yes.

4323. There is no supervision that you have ever seen in any market about that?—No.

4324. You do not produce milk yourself?—Only for my home consumption, and for the rearing of a certain number of calves.

4325. Have you any idea of what milk ought to be sold at, in order to be a fairly remunerative speculation?—I cannot go into that question, not being a dairy farmer.

4326. You have never been attracted by it?—I have thought of it, but I am afraid I am too old to begin now.

4327. The CHAIRMAN.—In your own immediate neighbourhood have you any information as to whether or not milk is procurable for the labouring classes if they desire to buy it?—I have heard certain complaints lately that they found a difficulty in buying it, but in my own immediate neighbourhood they have organised a dairy.—Lady Mayo has done so—and anyone that wants milk now can get it there at a reasonable price. The local people who have a surplus send it to this dairy, and I understand it is under very close inspection.

4328. But the very fact that this new enterprise had been started would seem to indicate that there was some necessity for taking steps to provide milk for the humblest classes?—Yes; I think the sale has been restricted by the Dairies Order.

4329. Those who were in the habit of selling milk heretofore declined to continue the trade owing to the supervision that was exercised over them under the Dairies and Cowsheds Order?—I think the small farmers did not think it worth while registering their dairies. They said they would not sell any more milk.

4330. That has, no doubt, restricted the supply of milk?—Yes, to the cottagers, without any means of doubt.

4331. The difficulty has been solved apparently in your own district by the establishment of this dairy by Lady Mayo?—Yes.

4332. Do you give your own employees milk?—I give milk to a certain number of them, and I think the rest purchase it. I supply my own householders.

4333. Do any of them keep goats?—None of my householders do. Some of my employees who are not householders might have a difficulty, but I do not think, as a matter of fact, that there has been any difficulty with regard to them. I have never heard them complain of any want of milk.

4334. Mr. WILSON.—I would like to know what your suggestion would be with regard to these tuberculous cows in the market?—I have formed a very strong opinion, indeed, that there is no earthly chance of stamping out the disease unless reasonable compensation is paid when the cows are condemned and slaughtered.

4335. What would you suggest as a basis of reasonable compensation. These pining cows are, as a rule, no longer as described them, "permanence on the farm"?—That is a very good description, indeed.

4336. They are not bringing in what feeds them?—No, and they are deteriorating. If a man notices an animal diseased he should report it, and get compensation to almost enable him to replace it.

4337. You think he ought to get the actual market-value of the animal?—Yes, I think he ought to get the fair market-value, perhaps a small percentage less. All the diseased animals would be reported if the owners got anything like reasonable compensation; if the animals are kept they are less valuable.

4338. And they are doing damage?—Yes.

4339. Your opinion is that if the farmers thought they would get reasonable compensation they would report the animals?—Yes.

4340. With regard to the animals in the fair—if a man was seen with an obviously diseased animal, would you not empower the inspector to seize the animal?—I certainly should, but I think the animals would never be seen in the fair if reasonable compensation were allowed. They only take the animals to the fair as a last resource, and some of them, of course, are not sufficiently obviously diseased, and they might be sold for a fairly reasonable price. Others are in an advanced stage of disease, and are sold as carriage meat.

4341. Have you any actual figures about the percentage of tuberculous animals?—I have not gone into my books. I would say this, last year from three to four per cent. among my own purchases. I am also talking of young cattle. Some of them are very slightly affected.

4342. You are not speaking in this four per cent. of cows that you have subjected to the tuberculin test?—I do not put them to the test at all. It is only from my practical experience I am judging.

4343. The CHAIRMAN.—Do you get rid of the animal when you find it diseased?—Yes.

4344. Have you attempted any sort of treatment?—I have tried treating these without result.

4345. Mr. CAMPBELL.—Have you any so-called Union cottages on your estate?—Yes.

4346. And these people who do not get milk from you, would you employ them?—I think there are only three on my farms in Union cottages; none of the three work for me.

4347. Do you know for whom they work?—I am afraid I cannot tell you.

4348. You spoke about your own householders?—Yes.

4349. Do you mean your horse and hewmen and so on?—Exactly.

4350. They are all in your own cottages?—Yes.

4351. And you have a certain responsibility for supplying them with milk?—Yes.

4352. But if you employed a labourer out of the Union cottages you would not supply him?—I only supply my own householders.

4353. You would not consider that you had any moral obligation to supply people regularly with sweet milk who were not in your household?—No.

4354. Do you think that feeding exists elsewhere?—I think that is the general feeling. The people think that they have no moral obligation to give milk outside their own householders.

4355. You referred to the deterioration of the milk in Munster?—Yes.

4356. Did I understand you to say that the creameries are responsible for this?—I am afraid so in a great degree.

4357. What other reasons would you give?—The dairy farmers who bred do not seem in the least particular what make they use for their cows. These people do not seem to care what bull they mate their cows with. In the old days, before the Land Acts, a great many of the landlords of Ireland were sufficiently interested in their tenants to breed and place at their disposal good bulls. That all ended with the passing of the Land Act of 1881. I have no doubt that the Agricultural Department has been doing a great deal of good.

4358. It takes the place of the philanthropic landlords you have mentioned?—I do not think it quite makes up for them. I am in favour of larger endowments for bulls.

4359. You are of opinion that the creameries have to some extent caused this deterioration?—Yes, but it is only fair to the creameries to say that the very self-same neglect of using proper bulls would exist if the creameries were not there at all. I want to make it perfectly clear that the Limerick cow is absolutely another animal to what it was before the creamery existed.

4360. That must be due to something else than the bull?—To the separated milk.

4361. Is it held among persons who are taking the same interest in live stock that you see, that it is the creameries that cause the deterioration in calves?—Yes, I think everyone who is conversant with the facts holds the same view—that the indifferent bull and the separated milk combined are the cause.

4362. Do you see a big trade going on in the sale of really good heifers that might make good milch cows?—Yes. Do you mean as the Co. Limerick?

4363. I am speaking generally?—Yes, the trade, no doubt, is going on, and cows are sent out of the country in calf.

4364. And there are some of these sent out fattened?—Yes.

4365. So that no matter what steps the Department might take to improve the animals, by the use of good bulls, there must be an enormous waste owing to these good heifers going out of the country?—Yes.

4366. If those could be retained you think it would improve the quality of the cattle?—Yes. What we mean, and what we blame the creameries for, is that we cannot find the same "top root"—the old magnificent, square Limerick cow so rapidly becoming a thing of the past; they are becoming much poorer.

4367. Do you see much of the trade in milch cows?—I see a certain amount of it. I see a great many bought and sold.

4368. Do you see the cows that are sold out of Ireland?—I do.

4369. Are these good cows?—They are fairly good cows, but I think they are not as good as in the old days.

4370. You think that they have also deteriorated?—I would not say that they have deteriorated in the same degree. Most of the cows bought in the Dublin market are bought outside the creamery districts. That is my experience. A good many are bought in Longford, Westmeath, and other counties outside the creamery districts, and I think in Wicklow and Kildare and Queen's County. Rathdowney is a very popular fair. I think the breed of cattle has improved in Queen's County. I do not know why. From this fair of Rathdowney a great many come to Dublin, and I would almost say they are the best cattle in Ireland.

4371. Mr. Wilson.—Is that a creamery area?—No.

4372. Does your knowledge extend to the North?—Not to any very marked degree. I have purchased cattle in Sligo and in Fermanagh.

4373. There are large areas in Ulster that are creamery areas in the sense that Limerick is. Would your statements apply there?—I am afraid I bought diseased cattle in Sligo. I, however, brought so few in Sligo for the last twenty years that I should not like to give an opinion with regard to the question you ask.

4374. You have a strong opinion with regard to the Limerick area?—Yes.

4375. I have been looking for figures—figures dealing with the export of cattle for a number of years past,

which show an increase, not only in the number of cattle exported, but a large increase in the value per head?—There was a large decrease in the export last year.

4376. I have not the figures for last year, but up to 1910, both the number and value of the cattle had increased, and in proportion the value had increased surprisingly?—Since when?

4377. During the last fifteen years the value of the animals increased from £17 to £28 per head. I am speaking from memory?—I wish I could agree with your statement as to the increased price of cattle—that in the last fifteen years the average animal that made £17 now made £28.

4378. I cannot recollect the exact figures—I have not gone into the statistics very closely, but in 1909 and 1910 I think there was no increase in the number exported.

4379. Here are figures—in 1900 the number exported was 346,000, and in 1910 the number was 360,000. That is not the actual table I was looking for—I notice according to this table that the number exported in 1902 was 360,000, and in 1904, 775,000, and that in the last four years the number averaged about 350,000.

4380. The reason I was quoting these figures was to know if you can suggest to us whether they showed evidence of your statement?—Take 1902—there were 305,000 more exported than in other years included in the table. The number of cattle exported would depend on the amount of feeding we could grow and produce and the price we can get for the cattle on the other side. If you had a good grass year like 1910 you would produce far more cattle. 1911 was a very bad year, and the export in that year would decrease enormously. If we have a good grass year this year we will have a very large increase.

4381. The reason I brought up these figures was to see whether you could suggest any evidence as to whether the cattle of Ireland were decreasing in either number or value from any cause?—Most of my evidence is given in reference to the districts in which I have purchased my cattle. When I speak of a decrease in value, I allude almost entirely to Munster. In the districts of Connaught the breed of store cattle has been improved.

4382. The point I wished to make was that your evidence refers to a specific area?—Yes, that is so.

4383. The CHAIRMAN.—You only speak of your experience in the districts in which you have been in the habit of buying cattle?—Yes.

4384. And your evidence is confined to this restricted area?—Yes.

4385. Mr. O'Brian.—Do you know at all what is charged for the grass of a cow in your district to a labourer?—£4 for the summer six months.

4386. Has that price been increased lately?—Not that I am aware of. I myself charge £4 for the grassing for six months, and I understand that is the usual charge made.

4387. We had evidence before us already that there has been in some districts a very large increase in the price charged for the grass of a cow in recent years, and that that increase was one of the causes accounting for the difficulty that the labourer experiences in getting milk. I think in one case we were told that the increase was from 25 lbs. to 45 lbs. for the grass of a cow, and that it was even considered a favour if you could get it at that?—I have not heard of any such increase in my district, and I do not think it has occurred. In my case the figure is the same as it used to be.

4388. The CHAIRMAN.—Do you never refuse an application for the grass of a cow?—I have never yet.

4389. Even though the labourer would not be in your own employment?—Yes. I have never yet refused the grass of a cow to anyone who asked me for it.

4390. I am glad to hear that, because it shows that in some districts the supply is not restricted by the difficulty experienced by the labourer in procuring grass for a cow. Do you know any other land owners in your district who observe the same custom?—I know of one who does—a gentleman who never refuses anyone who asks him for the grass of a cow. He is a very large land owner, too, and he never refuses either. I do not think in my district there is any difficulty in getting grass for a cow for £4 for six months. I have never heard of such a difficulty.

4391. Mr. CAMPBELL.—How will that man feed his cow in winter—the man that gets the grass of the cow at 4s for the summer months?—He goes to an auction as a rule, and buys a few cocks of hay, and sometimes I think he gives his cows a little Indian meal. As a rule, I see them going to an auction, and they buy a few cocks of hay.

4392. Do they sell the milk of the cows?—I do not think so; they keep it for their own families. They might sell a pint to a neighbour, but they do not make a trade of selling it.

4393. Do people come into your place with pails asking you to sell milk to them?—No.

4394. You would not care to do it?—No.

4395. Supposing you had a surplus of milk would you care to sell pennyworths to labourers?—I have never been asked. I should prefer to use the milk in rearing calves if there was a surplus. It has not been suggested to me to sell it in pennyworths. Most of my own people seem to have to great difficulty in getting milk. A good many of them have the grass of a cow, and if there was a scarcity, I imagine they would sell to each other.

4396. Mr. O'BRIEN.—You were talking of the deterioration, which you say is very marked in the stamp of animals in the creamery districts of Munster?—In the stamp and development.

4397. I mean the old squire Limerick cow that you referred to. I suppose you find that about Kilmallock?—Yes, but in a smaller percentage.

4398. Do you think that the deterioration could to some extent have come about because the best heifers, or many of them that would have been kept for breeding purposes, missed, and that the farmers, not wishing to have winter milk, and having to get feeding for the milk cows in winter, sold them rather than put them to the hall again?—I do not think there is a larger percentage of mistakes now than there was. I have no reason to believe that the percentage is larger than heretofore.

4399. You would not think that there is a considerable spread of contagious abortion?—I quite agree with you that there is. There is no doubt about it that there is a great increase in contagious abortion.

4400. You came across that in the creamery districts in Munster?—Yes; very frequently, and there is an enormous wastage of the calves from navel ill.

4401. That is white scour?—Yes; navel ill produces white scour. Navel ill has increased, too, and that is a serious factor in the deterioration of cattle in the creamery districts. I am afraid, too, the separated milk used in feeding the calves leaves them in a less robust condition. All navel ill is not fatal. The robust animal may get it and shake it off.

4402. Do you not think that the farmer now realises that the fat has been extracted from the separated milk, and that it is necessary to add some substitute to it?—I hope they are learning it, but I am afraid the calves fed on the separated milk are not looking like what they used to be in the old days. I hear of farmers who sold linseed, but I have heard that in very few instances.

4403. Sir STEWART WOOLSCOTT.—It you said by one or two previous witnesses that in their opinion in many districts the quantity of milk per cow per day had somewhat diminished as compared with twenty

years ago, and they spoke with reverence of the old Irish cow as a more abundant giver of milk?—I am not a dairy farmer, and anything I should say on that subject would not be of very much value. I do not know that I have noticed in my own case that the cattle give less milk than they did before. I do not think the system of farming practised in Limerick has improved. I think the land has been rather weakened in the past two decades. In my opinion they are taking too much out of the land and putting too little into it.

4404. Do you think that disease other than tuberculosis has increased?—Yes; navel ill has increased enormously, but one ought to alter that.

4405. In tubercular disease, which may reach to from three to four per cent. in cattle, is there much tubercle found in the udder?—In the cattle I was speaking of, where the percentage reached from three to four, the disease would probably be only in the initial stage in the lungs, and with the exception of one animal that I bought for a stepper, I had no cow whose milk I considered was tainted. There was one system I wanted to mention. It is not very largely practised, but it is to a certain extent—it is the keeping of cows in the creamery districts. The farmer will often leave his cows during the milking period, and the lesser complaints of the dreadful neglect in the keeping of the animals. This is a most pernicious system. The man who gets the cow tries to get all he can out of her.

4406. The CHAIRMAN.—Do you think that system is increasing?—I do not think so.

4407. I hope not.—It is a vicious system although it is practised in Scotland.

4408. Mr. CAMPBELL.—I do not know of it.—I would be inclined to agree that the system is decreasing.

4409. Mr. O'BRIEN.—I think in that case the creamery has rather put a stop to it?—Quite possibly. I used to buy a certain number of them, but you never found one in good condition. You would only buy them as a last resource.

4410. Sir STEWART WOOLSCOTT.—The tubercle does not seem to affect the udder very much?—In the last stages, when the cow has got very bad, there is a percentage of the disease in the udder. I have heard it stated to be 2½ per cent.

4411. Mr. WILSON.—2½ per cent. of what?—2½ per cent. of tuberculous cows in the dairy stock. That was before the inspection of the animals.

4412. Mr. CAMPBELL.—Is the number of persons engaged in the cattle trade increasing?—Do you mean the number of cattle exporters?

4413. Yes.—I do not think so. I think the Irish export of cattle, particularly of fat cattle, is not so numerous as he was. The English buyers now come over to Ireland and buy their own cattle very largely, and the necessity for the Irish fat cattle exporter does not exist to the same extent that it did.

4414. I had rather in my mind whether in local fairs the number of buyers and sellers, and so on, had increased. I ask that question to see whether that might not have something to do with the difficulty you have in finding good cattle—whether there are more people looking for them?—I do not think the local dealer is so numerous as he was, because people do their own buying directly or employ a commissioner.

Miss MARTHA LUGER examined.

4415. The CHAIRMAN.—You are resident in Killesno, Co. DUBLIN?—Yes.

4416. And you and your family have been well-known as largely interested in philanthropic work in that district?—We have been very much interested in the county generally.

4417. Do you believe much difficulty exists among the humbler classes in securing a supply of milk in your locality?—Yes, from about November until April. The supply is very plentiful in the summer, and there is no difficulty in getting it. We are in a milk district, you know. The small dairy farmer is about 2s, and during the summer there is no difficulty in getting milk.

4418. Is the milk raised by the people themselves or is it purchased?—I am not speaking now of the summer

months?—Round us there are few agricultural labourers; it is nearly entirely small farmers who reside in the district, and they raise their own milk. In addition, there are about five vendors of milk in the village of Killesno.

4419. Do these five vendors keep up a supply of milk for the winter months?—They tell me that they make an effort to supply their regular customers all the year round.

4420. In the village of Killesno there is no difficulty in procuring milk in summer or winter?—None, for regular customers.

4421. Not outside that area there is a difficulty in the winter?—Yes. The small farmer who keeps one or two or three cows in the summer does not attempt

to feed them in the winter, as a rule, and I have known instances where there is no milk at the winter.

4432. Not even for their own farms?—Yes. One of the vendors of milk in Killesnohra told me of one woman who comes in about two miles to bring out milk once or twice a week.

4433. That is the winter supply?—Yes.

4434. So that in reality one person is obliged to walk a distance of two miles to the village, and two miles back to her house, to procure a supply of milk to colour her tea?—Yes, that is at the present moment.

4435. And I presume that is not an isolated case?—My experience would lead me to believe that it is not an isolated case.

4436. For what reason do you think the small farmer fails to keep up the milk supply during the winter months—does he think it is not economically profitable to do so?—Ours is not a village district. If they could be shown that winter milk is profitable they would endeavour to produce it.

4437. They make no provision by the growing of roots for the feeding of dairy cattle in the winter months?—No.

4438. And they believe that they could not profitably do so?—Yes, that is the opinion.

4439. Most of those who engage in casual labour, I presume, are small landholders?—Yes. Not being a village district, there is no constant demand for labour. The small landowner, in addition to doing his own work, will work for others who employ him. It is very difficult to get an agricultural labourer in our district. It is difficult to secure extra help in the summer.

4440. Would you think that due to the fact that there is no continuous occupation for an agricultural labourer in your district?—Yes. There has been a great scarcity of labourers' houses. That is improving, and we are hoping some labourers will come into the district if labourers' cottages are built.

4441. Is the number of cottages increasing in your district?—Yes, largely.

4442. And you are hopeful that that will increase the supply of labour?—Yes.

4443. From what source do the people occupying these cottages secure their milk supply?—I think if there was a demand from them the farmers would consent to deliver milk. If we got constant labourers we would supply them with milk as we do our present labourers.

4444. Do you think the restrictions imposed by registration have in any way restricted the sale of milk or the number of people who are willing to supply milk in small quantities?—I have not come across it myself. I have been told that in the County town, Cavan, two or three people have given up the sale of milk for that reason, but I cannot speak from my own knowledge. I have been told of it in two or three places, but have not personal knowledge of the matter myself.

4445. You keep a large dairy herd?—My brother does.

4446. Do you supply your own labourers with milk?—We supply our regular men. They have a quart of new milk per day each, and when we churn they are allowed to take all the buttermilk after we take what we require for the house. They get so much wages, a house, and so much milk.

4447. The milk is a portion of their wages?—Yes.

4448. And it is mentioned at the hiring time?—Yes.

4449. And they get this milk summer and winter?—Yes, always. The quantity of buttermilk they get depends on the supply of buttermilk we have. If that runs short they are allowed to take separated milk after the house is supplied, and calves.

4450. Do you use a milk separator in your own dairy?—Yes.

4451. To what purpose do you devote the separated milk?—After what is required for the labourers, we devote it to the rearing of calves and pigs.

4452. What in your experience with regard to calves—do you consider this a useful food for them?—I am an ardent believer in separated milk; it is most useful for calves and people.

4453. You have not noticed any deterioration in the stock raised on separated milk, or any increase in disease among the animals as a result of being fed on separated milk?—We commenced calf rearing to any extent with separated milk.

4454. Do you feed the animals to maturity which as calves are fed on separated milk?—Yes, up to what we call stores. We never fatten cattle.

4455. Do you keep any of these heifers for cows—any of the heifers that are bred in your own place?—Yes, we try to renew our dairy stock from our own cattle.

4456. What I wanted to know is, whether your stock suffers from any disease by reason of the fact that the calves are brought up on separated milk, or whether you believe that their constitutions are impaired by the use of this article of diet?—Our experience is that our herd has improved very considerably, owing to our having more experience, and because we have men brought up under our own eye to take charge of them. We have men under our eye who see most trustworthy and have a great knowledge of feeding, and we try to avail ourselves also of scientific knowledge. Our experience is that disease in practically almost stamped out of our farms. We have not had one case of white scour among the calves for five years, that I remember.

4457. Have you any case of tuberculous disease among your stock?—I only know of one case that we recognised.

4458. What did you do in that case?—The cow was destroyed at once. In her case the disease made very rapid progress.

4459. With regard to disease, have you found it necessary at any period to dispose of animals which seemed to be thriftless, and that might be suspected of being in some degree unsound?—I have not any experience of that; I do not recollect any case of that sort.

4460. There has been no instance of that kind in your herd so far as you can recollect?—No.

4461. Do you keep milk records?—Yes.

4462. Do you find it educational?—Yes, most so.

4463. Do you, as a result of the keeping of milk records, eliminate from your dairy stock from time to time animals that are not profitable to keep in companionship with others?—Yes.

4464. And has the milk in your dairy since the records were begun been increased?—Very largely.

4465. Can you tell me what is the average yield of milk from your dairy herd?—The steward told me that last year our best cow gave 940 gallons of milk, and the average in that neighbourhood is 800 gallons. Our worst cow gave 315 gallons.

4466. In the ordinary course, I presume, that cow would be culminated from the herd?—It was a pure-bred shorthorn, and she was taken in as an experiment, and we are keeping her for another year.

4467. Is the entire herd pure-bred?—No; we do not believe in the pure-bred for milk. This cow that gave the 940 gallons is from an ordinary cow and a red Lincoln bull. And the cow that came next to her in yield is from a pure-bred Jersey bull. She gave 879 gallons.

4468. Mr. O'BRIEN.—Have you the average yield of your stock?—It was given as 600 gallons, but I think that is high.

4469. The CHAIRMAN.—Of course, your herd is highly fed in the winter time?—Yes, at all seasons.

4470. So that we may realise that the milk is produced under the best conditions, and that the animals receive every care that it is possible to give them?—Yes, although we go entirely in for profit and not for fancy. I do not think that they would be as well cared for in an ordinary farmer's place.

4471. I can quite believe that. Do you, in feeding the young calves, give them, in addition to the separated milk, some food to supply the fats extracted?—Yes; our calves get new milk for three weeks from the mother, and I think that is the practice in our neighbourhood. At that time we begin to add the separated milk, with the addition—at present it is "Biddy's" food. In about five weeks they are fed on separated milk with the addition of oil meal.

4472. Did you try cod liver oil as an addition to the separated milk?—We did one year, but we gave it up.

4473. You were not encouraged to continue it?—No. We use very much the food recommended by the Department, which is linseed, oatmeal, and molasses.

4474. From your own experience, have you found that that has produced satisfactory results?—Yes.

4475. Is there a creamery in Killesnohra?—There is.

4496. Is the separated milk used for the feeding of calves generally by the people supplying milk to the creamery?—Yes.

4497. Do they, as you do, give in addition to the separated milk certain other foods in order to make up for the diminution of the fat?—Yes; I have asked a good many farmers about the district and the creamery manager, and they told me that they did not know anyone who does not add to the separated milk for feeding purposes, and that the trade in meals has increased.

4498. Does the creamery supply the calf meal?—Yes. There is an agricultural store connected with it.

4499. Is this a co-operative society?—Yes.

4500. Mr. CAMPBELL.—An agricultural and dairy society?—Yes.

4501. The CHAIRMAN.—Do you use crushed oats as a food for milch cows?—Yes.

4502. Do you think it is an economical food?—Yes. My brother is not convinced that feeding is paying; he is not satisfied on the point yet, he is keeping very careful accounts dealing with the matter. His milk is worth to him about 8d. a gallon, and he is not satisfied that 8d. will pay for milk in the winter time. We do not sell the whole milk at all, but we sell the butter in London. The milk brings him in 8d. a gallon.

4503. As a result of the sale of the butter?—Yes, as the result of our working of the farm.

4504. Do you sell butter that you produce at home through a co-operative society, or have you an independent market?—It is almost all sold through the parcel post in England.

4505. It is said in order to secure the best financial results?—Yes.

4506. And notwithstanding that fact, you have come to the conclusion that the result of that sale only gives a price equivalent to 8d. a gallon for the milk?—Yes, but in addition to that, we have the separated milk, but that is the return of the new milk—8d. a gallon.

4507. What is the net financial result of winter dairying in your district?—I think that is the result—8d. a gallon for the milk.

4508. What does your brother estimate is the value of your separated milk?—He said that he could not put less than 1d. a gallon on the separated milk.

4509. And he did not feel disposed to put more?—No.

4510. So that I may tell it that the 8 s. d. amounts to this, that that butter, sold in this particular way, through the highest market, which is above the ordinary market price, produces about 9d. a gallon for milk, including 1d. for separated milk?—Yes, in the winter time.

4511. Lady BRYAN.—How many gallons of milk do you consider go to a pound of butter?—We have got one pound from two gallons, but that is exceptional.

4512. The CHAIRMAN.—Have you farms in that head?—Yes, we have three. I think that two gallons of milk to a pound of butter is unusual.

It certainly is.

4513. Lady BRYAN.—Do you not consider that if you could get a market for your milk that it would pay you better than to churn it into butter?—Yes, if I were near a town, but not in the circumstances of our farm.

4514. The CHAIRMAN.—Does your creamery work in the winter months?—Yes.

4515. What is the creamery price for milk at the present time?—In November it was 6d., and December 8d. or 9d.

4516. And in the summer what would be the average?—I think the average last year was 4½d. a gallon.

4517. When the creamery continues working in the winter time there must be a moderately large number of farmers who are following winter dairying?—It would be winter dairying in a limited sense, but I do not think we have many farmers who actually feed for winter dairying.

4518. What I understood by winter dairying would be that, that a farmer who elects to keep a dairy farm would continue to supply milk for the whole twelve months, rather than for the six or seven months as practised in some Southern counties. Are there any occasions closed down in the winter in your district?—I do not know of any that are closed down during the winter. There are fourteen auxiliary creameries to our creamery.

4519. The custom which prevails in your district differs from that which prevails in most of the southern counties?—I think so. We never work on Sunday.

4520. What becomes of the Sunday's milk?—It is churned at home to supply the families with butter and buttermilk.

4521. Is that an invariable custom?—I think I may call it invariable.

4522. The creameries do not receive milk on Sundays?—No.

4523. Of course, there is a very considerable reduction in the quantity of butter produced in the creamery in the winter as compared with the summer?—Yes.

4524. Can you give the Commission any idea of the quantity of butter produced in the winter months?—I cannot, but I can send you the information if it is important. I can tell you about the whole year.

4525. The reason why I put the question is this—I was anxious to know how far winter dairying was practised in this particular district?—We do not understand this exactly as winter dairying.

4526. Cows are fed in your district to such an extent as to enable the creameries to keep open in the winter months?—Yes.

4527. This practice differs materially from the custom in other districts, because there the creameries close down and do not do anything in the winter months, and the result is that there must be an enormous decrease in those districts.

4528. Do the creameries sell new milk?—No, the farmers very strongly object to that—the milk suppliers and the creamery organisations do not like new milk to be sold at the creameries.

4529. What would be the objection—would not the retail price of milk be more remunerative than turning the milk into butter?—I cannot tell the objection, but I asked the creamery manager if he did, and he said the committee of the creamery and the farmers would not like it.

4530. Do the farmers sell milk?—I do not know of any who do. There are vendors of milk in the village of Killybegh, as I have said.

4531. What I wanted to know is this, supposing a man keeps three or four cows, and if there was a labourer resident in his district, could that labourer get a pint or a quart of milk from that farmer if he was willing to pay for it?—He might, if he paid for it. Some labourers keep goats. We sell milk to two people who are not resident on our farm.

4532. They are working with you?—No.

4533. You charge them by selling the milk to them?—Yes.

4534. Does that custom prevail amongst people who are engaged in the same system of farming in which you are engaged?—Well, I do not know of any others around our district who are engaged in the same system. I think all the large farmers supply their own labourers with milk.

4535. That is what I wanted to know?—I have not heard of anyone who does not supply his labourers with milk. I was told it was part of the contract. An ordinary herd has generally a cow.

4536. In view of that fact I take it there is not usually a scarcity of milk in your district?—Not in the sense of scarcity in Meath or Donegal. I do not think there is over the whole district a scarcity of milk in that sense.

4537. I take it, it would rarely occur that a person who had money to buy milk could not procure it?—I have been told that it does in the country three or four miles from Killybegh.

4538. But you have not any actual knowledge of the fact yourself?—One man told me he has no milk from the time that one of his cows goes dry until the other begins to milk.

4539. There would be small farmers?—Yes.

4540. It is owing to the fact that they keep a limited stock of cows that they have a limited supply of milk, but they are all cowkeepers?—Yes.

4541. I presume you mean that they would not be without it entirely, but only have a limited supply?—They may be out of it for a few weeks, but they can get what would colour their tea from a neighbour.

4542. Is the separated milk used as food to any considerable extent?—Not as much as we would like to have it used. We are advocating its use, and trying to get people to use it. We use it ourselves. We think it a useful food.

4512. Do you think it is useful for children?—Not for infants.

4513. I mean for growing children from three years and upwards. Do you think it is a useful food for them?—Yes, with other foods added to it.

4514. Is it used to any considerable extent, do you think, by the people for children of that age?—It is used in making bread, and they use it in cooking, more or less, but not for drinking as much as they might.

4515. Is there a prejudice against the use of it?—Yes, there was a great deal written about it, and a great many people spoke about it as not being useful, and there was an idea that calves would not do good on it, but that feeling is dying out.

4516. And you think it is being more universally used than in the recent past?—I think the use of it as human food is growing, and that it is acknowledged that it is a good food for calves, and has no injurious results. I have heard the evidence of the gentlemen who preceded me, and he spoke of the calves deteriorating, but I would like to know what these calves were fed on before the creamery was established. If they were fed on new milk it might make a difference, but if they were fed on buttermilk I do not see how that could be a more nourishing food for calves or children than separated milk. There is nothing removed from the separated milk but the impurities and the but. Pure separated milk, with separated cream added back, must be a purer milk than any other. If you look into the separator after the separating is finished, I think you would be perfectly astonished at the amount of filth that remained.

4517. Do you think that a substantial number of the cottiers or labourers are deprived of a reasonable quantity of milk owing to the scarcity of it?—Yes, I think when their cows cease giving milk there is a scarcity. Nearly all the poor people keep a goat tied along the road, and these goats in our neighbourhood are of a very poor class.

4518. Their period of lactation is very limited?—Yes. I went into one labourer's house, and the women told me that she had no milk at all now, and that her children were peacefully living on tea and Indian meal.

4519. I am afraid we would not be very likely to produce a very healthy population on that diet?—No. We put her in the way of doing better. Her husband had half an acre of oats attached to his cottage, and he was going to sell it, but we persuaded him to have it made into mead.

4520. Do they use porridge among the humbler classes?—The farmers use it, but not the labourers.

4521. The farmers use it, but the labourers not at all?—I would not say "not at all," but very little.

4522. Is there a prejudice against the use of it?—They say the children like tea better, and they would have to get up very early in the morning to get the porridge ready for breakfast. Most of the labourers have to commence work at 8 o'clock, and have their breakfast before that time, and it is quicker to boil a kettle and have tea than to prepare the porridge.

4523. That discounts its general use?—It has something to say to it.

4524. The farmers who are not so much bound to time as the labourers can afford to wait until the porridge is prepared?—Yes, and they use it.

4525. Lady EVERARD.—You have got very little fencing land in your locality?—On our farm of 215 acres we have not more than five acres of fencing land. We have never taken to fencing as a rule.

4526. I suppose all the calves reared in the neighbourhood are sold as stores?—Since the creamery started they see the actual result of every gallon of milk, and we are trying to get them to keep their best heifers, and they are sometimes kept for cows, but the great bulk are sold as stores.

4527. Do you find condensed milk is used in your district?—Very little.

4528. Dr. MOOREHEAD.—The land, of course, would be suitable for tillage if you had sufficient labour?—The subsoil is almost entirely yellow clay, and that makes tillage more expensive as compared with tillage on limestone, and it is sometimes late in the year when spring-ploughing can be done.

4529. That would make the winter feeding a little more expensive?—Yes, if a farmer has sons of his own, and has not to employ labour, it might pay him to till, and we are experimenting on our own farm.

4530. So far as you have gone you think that at 8d. a gallon it would not be a remunerative undertaking?—My brother said so to me eight or ten days ago, but we did not quite agree with him.

4531. Mr. CARMICHAEL.—In your case you are paying for all your labour?—Yes, and once in a while my brother is not always at home.

4532. The CHAIRMAN.—You have an advantage on the other side that the product of the milk is sold at a price higher than the ordinary producer would be likely to obtain. Can you tell me how much higher the price you get for your butter in this market is than the price that the creamery gets?—I cannot answer that question, because I would have to know the average price.

4533. Does your price vary in the different seasons?—Yes, from November to May, and from May to November, but not from month to month.

4534. You have a regular supply of customers?—Yes, we have a regular supply, and when our customers are on holidays we send our butter to the creamery.

4535. Mr. WILSON.—I want to try and understand why this labourer you spoke of was unable to get milk. You said that the district is full of small farmers, and that they all have milk, and that there is a big creamery in the district?—There are a number of farmers sending milk to the creamery, and the farmers have great reluctance to sell new milk. They do not like to sell it in small quantities. That particular man I mentioned was unfortunately situated.

4536. I would like to get your opinion as to why there should be an objection to sell new milk by the creamery from the farmers?—I cannot tell you why there is by the creamery. I asked the manager and he only said the farmers do not like it.

4537. The point that I wanted to try and get at is, whether the small man, if he is buying the milk, pays more than your are getting?—No, that is the price winter and summer in our village—8d. a gallon. They never raised it.

4538. That is better than the creamery will give them?—They do not think it better in the winter; they get their separated milk back. I cannot really answer the question. The farmers will give milk to a man in the case of illness, or if he wants it badly, without charge, but they have an objection to sell it. They are extremely good to one another, but they object to sell their milk. There was a large meeting in the village at Killybegh, and I asked the manager of the creamery if we could get three gallons of milk, and he said that there was a distinct objection to selling milk from the creamery.

4539. The hypothesis is that there is a shortage of milk in your district?—This labourer I spoke of was not near the village, where there is a sufficient supply.

4540. I do not want to speak of the exceptional case. There is in certain places a shortage of milk in your district?—Yes, but not in the village of Killybegh, as far as I can find out. The farmers who send into the village have no shortage, but it is the people three or four miles out.

4541. That is where the shortage is?—Yes, I cannot find any shortage in the village. I may explain that the creameries do not buy the milk from the farmers, but pay so much for their butter fat; but if the creameries were going to take a gallon of milk out of the farmer's supply and sell it they would have to give a different price for that than for the rest of the milk, and that would complicate matters.

4542. Mr. CARMICHAEL.—Are not the farmers very keen on getting back the separated milk for their calves?—Yes.

4543. They will not sell the separated milk?—They will not sell milk at all, I think.

4544. The CHAIRMAN.—Do you think the restrictions imposed by the Dairies and Milkshops Order in any degree operate against the sale of milk by the farmers?—There has never been milk sold by the farmers in our district. I do not think it does. To run up—my experience is, especially in the case of the small farmers in our district, that there are certain periods when there is a scarcity of milk, and that casual labourers in the country find it very difficult to get milk, but that engines rearing in the village can get a supply of milk. There is just one other thing I should like to say about the Dairies and Milkshops Order. I consider that our cowboys are tremendously in need of inspection, but I think it is a pity that the

sanitary officer should not be made the medium of prosecution. The members of the District Council are all almost entirely drawn from the farmers whose sheds are liable to inspection. I have never read of any prosecution against people in my district for not keeping their cowsheds in proper condition. I think the medical officer would be more independent to order prosecutions than the District Council. If the Council discuss reports, they may take no action in regard to them, and that is the reason why I would like the power of prosecution put in the hands of the medical officer rather than remain in the hands of the Council.

4545. You think the medical officer should be empowered to order prosecution independent of the District Council?—I think so; that is the great idea on the Act—that it is being worked by the kind of people who are liable to have their own premises inspected.

4546. You are not, Miss Lough, the only person who has directed the attention of the Commission to that matter. Has anything been done by your Local Authority with regard to inspection—have they an inspector?—The Local Government Board, after a considerable time, sent down a notice that they would appoint an inspector independent of the Council, if the Council did not appoint one themselves, and then there was a man appointed. I know myself one result which followed from that appointment. I visited a house which was beautifully kept, but there was a manure heap in the yard, and the woman said, "I suppose we will have to remove it now that an inspector has been appointed."

4547. Mr. O'Brian.—I think you said that 1d. per pint is the customary price for milk in your district?—Yes, in the village.

4548. Can you get a steady demand for milk—supposing that you were to sell milk all the year round instead of making butter of it?—The vendors in the village have a steady demand.

4549. If you went into that trade yourself, instead of making butter, do you think you would get a steady demand?—If I could persuade the people to come to me instead of to their present suppliers I could. There is one big place where they go in for pure-bred cattle, and they are willing to provide the deficiency in the milk supply at the same price as it is sold at present.

4550. You say that you worked out the value of your milk at 8d. a gallon altogether—the new milk and the separated milk?—You mean the return to us?

4551. What I want to get at is, is that taken off the extra wages?—No, that is the gross.

4552. The value of your milk as drawn from the cow is 8d. a gallon. If you could sell your milk at 8d. a gallon without any further handling than the milking and putting it into the tankard, it would pay you better than turning it into butter and sending it to London?—I suppose it would, but then you would give up rearing your stock. Last year there was a big profit on pork, which we sold at over 60s. a cwt.

4553. These are a sort of by-product of the milk?—Yes.

4554. And if you sold your milk you would lose the by-products?—Yes.

4555. Talking of the Dairies Order, has it made any difference in your district amongst all these auxiliary creameries—has it prevented any of the farmers from sending their milk to the creameries?—I did not know that farmers sending milk to the creameries were liable to inspection.

4556. They are.—I have not heard of it making any difference.

4557. It has been maintained that it has affected the creameries in certain districts adversely by preventing the farmers from sending milk, because they would come under the Order?—I have not heard that stated. I did hear one person saying that it had affected the milk vendors. The milk supply in our district has steadily increased to our creamery.

4558. You say you use separated milk yourself for human consumption with good results?—Yes.

4559. Do you use it with oatmeal porridge?—I do sometimes, but in the cowsheds' hall they use new milk, we use it largely for milk puddings.

4560. Porridge is not a very general diet throughout the country?—It is amongst the farmers.

4561. And they use separated milk with it?—I do not think so. There has been a great prejudice against it for use as human food, but that prejudice is dying out.

4562. The Chairman.—And even the farmers suffer from the prejudice?—Yes, but they are gradually beginning to overcome it.

4563. Mr. O'Brian.—I think we had evidence that oatmeal porridge used with separated milk adds greatly to the value of the separated milk?—Yes, I use it myself, because I do not like the rich milk. Our separated milk is very good. The cowsheds would not take separated milk. They think that if it is cooked it might be alright, but they do not like uncooked separated milk.

4564. Mr. CAMPBELL.—It is not as good as new milk?—No.

4565. The Chairman.—But it is not as bad as they think it?—It is not.

4566. Mr. O'Brian.—They drink skim milk?—No, they will drink buttermilk.

4567. Though probably the food-value is less than that of the separated milk?—Yes, it must be less.

4568. Sir BERNARD WOODHOUSE.—Does fat bacon enter largely into the diet of the people?—No, the people have got out of the way of curing their own bacon. The American bacon is fat, but the lighter Canadian bacon is more used.

4569. Is it not so fat as the American bacon?—No.

4570. Is the American bacon used in the same way, that is by dipping the bread into it?—I do not know.

4571. Is there a prejudice against goats?—No, there is not, but there is a prejudice amongst the larger farmers against them, on account of the destructive habits of the animal. My sister was in town in the winter and heard a good deal about goats. She is trying to persuade my brother to do something in that matter, but he has declined, and suggested to her that if she wanted to experiment with them she should take a farm of her own.

4572. Is there a feeling of pride amongst the people that is operating against the keeping of the goats?—No, but there is a good deal you cannot understand in the small farmer.

4573. Miss McNEILL.—Has anything been done about the goats in your neighbourhood?—We heard of two new ones coming into the district, but we do not know where they are. Our rector told us that he saw a strange-looking goat recently. My sister intends to take up the question of goat-keeping.

4574. Do you know the ordinary yield of a goat?—A woman told me that her goat gives three pints a day, and she mentioned that fact with pride.

4575. For how long?—About six months.

4576. Mr. CAMPBELL.—Three pints is very good?—I think it is unusually good.

4577. The Chairman.—Was the 940 gallon cow reared on your own place?—Yes, we bred her ourselves.

4578. Do you know anything about her mother's milking qualities: did she come of a good line?—Yes, her mother was bought at a fair, but I cannot tell you very much about her, except that, being a good cow, she was watched and milked with this red Lincoln bull. She took first prize at our Show. She seems to have taken the colour of the red Lincoln bull, which was bought from the Department in 1910.

Mr. CAMPBELL.—The red Lincoln shorthorns have got rather a reputation for milk, and we had a draft of them, and this one went to Killybegs, and they are all from good cows with good records.

4579. The Chairman.—Have you any other cows by this bull at the dairy at present?—We have a Jersey shorthorn, and her record was something over 800 gallons a year, and then we had a third cow, but through careless milking her order went wrong. The Jersey got the colour of the red Lincoln bull, but was nothing like it in size.

4580. Have you ever tested the milk for butter fat?—Her milk was so good that in the dairy she was better than the cow that gave 940 gallons. She was more profitable for the production of butter.

Mr. JAMES H. McGRANE examined.

4381. The CHAIRMAN.—I understood, Mr. McGRANE, you are Inspector of Dairies in the South Dublin Rural District?—Yes.

4382. Can you tell the Commission how many dairy herds there are in your bailiwick?—Sixty-nine registered dairies.

4383. These, I take it, are all outside the Circular-road?—Yes.

4384. Are they purveying milk in the city—the owners of these dairies?—Not all. Those that purvey in the city have to put up a number which is obtained at the Public Health Office in Castle-street. If they serve milk in Rathfriland they have also to register there.

4385. Do you find owners of dairy herds are, as a rule, willing to conform with the regulations laid down in the Dairies and Milkshops Order?—Yes, the great majority of them seem perfectly willing to comply with all the rules and requirements that the Veterinary Inspector or myself require of them. There might be perhaps half a dozen that we have a little trouble with, but the great majority are quite willing to comply with the rules and act on the suggestions of the Veterinary Inspector and myself.

4386. Will you kindly tell the Commission what conditions are necessary in order to secure registration—are any conditions laid down for that purpose?—There is a form to be filled in by the applicant. The cowkeepers make an application to the Rural District Council for a form to fill in. There are certain questions in that form to be answered by the applicant, and when the form is sent up to the Rural District Council that is sent on to me to report on.

4387. And you make an inspection of the premises?—Yes, on receipt of the application.

4388. And if you should have any doubt as to the suitability of the premises, you refer it to the Veterinary Inspector?—Yes.

4389. Do you ever suggest or require that structural alterations should be carried out before registration is granted?—Well, they never apply for registration until they start to carry on the trade. I don't remember having any applications until the people have started the trade. In fact, some of them require to be brushed up to make them register. They have frequently to make structural alterations in the sheds, such as concreting, ventilation, sewers, and matters of that kind.

4390. Do you find that they are always willing to conform with whatever improvements you think it desirable should be carried out?—Yes, they are fairly well disposed to carry out the improvements that we require of them. Of course, we make inspections with a view of knowing that the people engaged in the trade are clean—that their hands and persons are clean, and that they strain the milk. The great majority of them, particularly the richer ones, seem to take special care in regard to the milk, using a double strainer—a cloth over the perforated wire strainer.

4391. I take it your visits are paid promiscuously?—Yes. We have no settled time for visiting the places, and I never observe a special order in regard to the inspection.

4392. You have no fixed day or hour for calling on the cowkeepers?—No. I visit them every day except Thursdays. I know that on that day they are away, but on the other days they do not know when to expect me. There is a further check on them by the Veterinary Inspector, who visits independently of me. Perhaps if I visited a man to-day, the Veterinary Inspector might visit him to-morrow. There is no arrangement between the Veterinary Inspector and myself as to when we shall make our visits.

4393. Do you think that the application of the regulations laid down in the Dairies and Milkshops Order has, to your own knowledge, improved the conditions under which milk is produced?—There has been a vast improvement. Since I became Inspector the conditions are very much improved, both as to ventilation and as to the care of the animals and cleanliness. All the dairy keepers have water and soap for their men.

4394. It has become a recognised custom to observe the conditions laid down in the Order, and you find those engaged in the trade willing to co-operate in carrying out those conditions?—Yes. We seldom drop on the very small people with one, or two, or three cows during the milking hour, but in regard to the

larger ones our visits are made when the milking is going on—we see the strainers and the workmen, and we can examine their hands.

4395. And the vessels into which the milk is poured?—Yes. I give special instructions that these shall immediately be rinsed in cold water after the delivery of the milk and washed afterwards. We prefer the vessels to be first rinsed in cold water in order to take away the particles, so that the hot water may not dissolve the fats that might remain.

4396. And have you reason to believe that these conditions are observed?—Yes, we have every reason to believe that they are fairly well complied with by the dairy owners.

4397. Do the workers engaged in the industry resent the introduction of new methods as compared with the old methods with which they were familiar?—We find there are no complaints. I suppose they would not think it right to complain to us.

4398. Whatever their views are they keep them to themselves?—Yes. If we ask them anything about the washing of their hands they appear to know that they should comply with this condition.

4399. What I wanted to get at was this—whether or not they had come to recognise that the methods which they had practised in the past would not be permitted now?—They are quite well aware that the old methods would not be allowed to exist under existing circumstances. I heard complaints from some of them that they could hardly carry on the trade with all the restrictions. Occasionally I hear a grumble of that kind.

4400. Have you given any consideration to the question of licensing as compared with registration, and, if so, would you be in favour of licensing dairy keepers?—Well, I have not given any close thought to that. I don't know on what conditions the license would be granted.

4401. It has been suggested to this Commission that it would be desirable, in order to ensure the even more rigid fulfilment of the conditions laid down, that licenses should be issued to people engaged in the trade, and that the personal character of the individual who proposes to embark on the trade should be considered in the first instance, and the suitability of his premises should also be taken into account and inspected before the license was granted to him?—I don't think that that is necessary. The people seem fairly well disposed to produce the milk under reasonable conditions, and I do not know that licensing would be necessary. Already the price of milk is very high, and I don't know that it would be well to hamper the dairymen too much while we feel certain that they produce milk under proper conditions. I don't know that it would be well to impose any unnecessary hardships of that kind.

4402. The suggestion is made in the interests of the public health—that it would procure the production of clean healthy milk, and that if further restrictions were imposed on the cowkeepers and that these conditions added to the cost of producing milk, obviously the vendors of the milk should be at liberty to vary their prices in accordance with the increased cost involved in the carrying out of the conditions imposed?—I think that that would have the effect of banishing some people out of the trade, and if you limit the number of people carrying on the trade it would be reasonable to suppose that you would increase the price of milk, and already it seems to me that the price is rather prohibitive to the labouring classes. They find it difficult to make up their minds to purchase enough milk as present for their own purposes.

4403. I am anxious to have your view on that question, and the reason I put it to you is this, that it has been suggested to the Commission that it would be a desirable condition to insert in the granting of the licenses that the personal character of the applicant and the circumstances surrounding the premises in which he proposes to carry on the trade should be taken into consideration before the license was granted. Your opinion is that that would curtail the supply of milk and lessen the number of people carrying on the trade?—It would lessen the number carrying on the trade. They are at present grumbling with the regulations they have to comply with. They seem to think that the restrictions are rather harassing. I am not aware that a single case of infectious disease has been disseminated by milk produced in our district. I cannot call to mind a single case in which infectious disease has been traced to milk in our district.

4604. You are speaking entirely of the Rural District?—Yes, only my own district.

4605. You are familiar with the considerable rural area where you reside yourself?—Yes.

4606. And the other part of the county where your official duties take you?—Yes.

4607. Is there any difficulty experienced by the laboring classes to secure a supply of milk for their families?—I am sure the supply is very considerably limited in a great many cases, and it is very much owing to the expense of the milk. Fourpence a quart for raw milk makes a hole in a laborer's wages.

4608. What I wanted to know is this—supposing for the moment that no question of inability to pay for the milk entered into the matter, can a laborer, who has money to pay for milk, always procure it when ever he wishes?—There are very few cases in which a man having money would not get it. The cow-keepers are fairly well distributed over the district with which I am acquainted—the districts of Palmerston, Clonsilla, and Rathfrilandham. The dairies are well sprinkled over the district.

4609. Do all of these dairy-keepers sell milk in retail quantities at their dairy-yards?—Many of them do, but not all. A few of them send their milk to the Lissen Dairy and have no shops.

4610. Do you know to what reason they refuse to sell by retail?—I don't know that they absolutely refuse, but I suppose they don't get custom enough to carry on a trade.

4611. Because it has been represented to the Commission already, that where contracts are made for supplying wholesale the entire product of the milk of the herd to one individual it is some degree similar to the retail trade?—Yes. In those cases where the milk is sent from the premises of the cow-keepers to the Lissen Dairy these people don't care to carry on a small retail trade.

4612. Is it owing to the difficulty in collecting the money, or for what reason?—The chief reason would be that they don't like going to the bother of measuring out the milk in small quantities, and there would be a difficulty in a great many cases in collecting the money. Ready money is not always to be had.

4613. Are there a number of goats kept by the laboring classes in your district?—There are a fair sprinkling of goats throughout the locality, but they are a dreadful source of friction between the land-owners and the laborers. In a great many cases they are a perfect nuisance, destroying the fences. I know a case where the goats broke the hedges for half a mile along the road, and, of course, thereby destroyed them and destroyed the fences. The goats are a great source of annoyance to landowners. I am only speaking of my own district.

4614. In some districts in South Dublin you have groups of laborers' cottages, notably on the Nuss road?—Yes.

4615. These have land attached to their cottages?—Most of them have.

4616. Do these keep goats?—Some do and some don't.

4617. Do they get a regular milk supply, and, if so, from what source?—There are dairy-keepers in the district that supply them to a certain extent, but I don't think they can get a sufficient supply. I cannot say that they get an ample supply.

4618. You have never seen the milk-women driving along to these cottages as you see them passing through Kilmashogue?—I have never seen the milk-women stopping at the doors. That is away from my district, but in my own immediate neighborhood I see the girls stopping at cottages along the road.

4619. They do stop and give whatever supply the people are disposed to take?—Yes, in my own neighborhood. I have ocular demonstration of that every day.

4620. You said that some of the cow-keepers in your own district supply milk to the city and to Rathfrilandham?—Yes.

4621. Have you ever had any inquiry from the Local Authority in Rathfrilandham, or from the Corporation of Dublin, as to the condition of a certain dairy in your locality, from which it was alleged milk with germs of disease, or suspected of having germs of disease in it, had been supplied?—I have had no inquiry, but in my own district the Inspector from Rathfrilandham, for instance, was sent out to inspect the dairy-yards for

some reason or other. The case that is most impressed on my mind is this—a dairy-keeper had not registered in Rathfrilandham, and the Inspector came out and suspected the place, and found it in perfect order. She told the proprietor of the dairy that she did not know whether action would be taken against him for not registering. Action was taken, and the proprietor was fined for not registering, but there was no fault found with the premises.

4622. Do you think many people vend milk in your district who do not register?—No.

4623. Would you be the responsible officer for seeing that vendors were registered?—I am not the authority for registering. My duty is to report when an application is made for registration. Of course, if I knew persons who were selling milk without being registered I would tell them immediately that they were liable to a prosecution, and would make the fact known to the proper authority if they continued selling milk without being registered.

4624. So you think that the number not registered would be very limited?—Yes. I have given evidence in cases where people did not register their premises, and convictions were made against them.

4625. Is butter-milk available among the poorer classes in your district?—To a limited extent. They don't get it from the dairy people. The cow-keepers don't churn as a rule. They prefer selling their milk as it comes from the cow.

4626. Your experience is very considerable in this district?—Yes. I have an experience as inspector and also as a resident in the country all my lifetime.

4627. Have you ever known a case in which an outbreak of infectious disease had been traced to the milk supply?—No. I am not aware that any infectious disease broke out in my district from that cause. I don't know what may happen in Dublin.

4628. What I wanted to know is this, has the question ever arisen that the milk supply was suspected of being the cause of an infectious disease?—I don't think there has been a case of infectious disease attributable to the milk in any place where our milk is sold, but one of the first steps that would be taken would be to send an inspector to inspect the premises from which the milk came.

4629. Has that been done in your own district?—Yes.

4630. Have the Rathfrilandham Inspectors come into your district for the purpose of seeing the conditions under which the milk was produced?—I am not aware. I have frequently heard that someone from the city came to inspect the dairy-yards where disease occurred among the families supplied with the milk.

4631. That is what I want to know: have the Local Authority, where milk-borne disease was found to exist, come into your district for the purpose of examining the source of supply?—Yes.

4632. Have you known of it being done?—I have heard of it being done—that Dr. Russell or someone from the Corporation was out.

4633. You have not been called upon, in consequence of these visits, to suggest any alterations in the premises or in the conditions under which the milk was produced after these inspections?—No. I suppose the premises were found to be alright. I have never been called upon to take action as a result of these visits or inspections.

4634. Have you known medical officers from the city to come out to your district for the purpose I have stated?—I have heard of them being out. I have been told that they were there.

4635. And then visits have not resulted in any practical steps being taken for the improvement of the conditions under which the milk was produced?—No. I remember no case where we were called on to make any alterations in the conditions under which the milk was produced.

4636. Do many of the cow-keepers in your district supply large institutions in the city?—A few of them do. A number of them supply the Lissen Dairy, and some supply hospitals and hotels.

4637. Does any milk come into your district for distribution that is not raised in the district—from any source by rail?—No. It is to Dublin it would come by rail. None of it comes into my district by rail.

4638. And no duty is imposed on you to make any inspection of the conditions in which the milk is received at the stations?—No.

4680. That, I suppose, would be for the City Authorities?—Yes. We often hear complaints that it is a hardship on milk producers in our district that they must comply with all the conditions laid down in the Dairies and Cowsheds Order and that the people in the country are sending in milk without supervision such as is exercised in Dublin.

4681. That is a cause of complaint among the co-operators of the City and County of Dublin—that they are obliged to conform with the regulations of the Dairies and Milkshops Order and that other people may compete with them in whose district the Order may not be in operation at all?—Quite so. Our people are complaining that they are competing with people who are under no inspection, or who are not required to put their premises into proper condition.

4682. Do you consider—What do you consider a fair remunerative price to produce milk at—what ought the milkman get for his milk?—The dairymen insist that they are working at a loss if they don't get 4d. a quart. Last year it was more expensive on the dairymen than it was in other years.

4683. In your opinion would they have a profit at a lower price than 4d. a quart?—I don't think so. That is the general opinion that I hear.

4684. There are no creameries in your district?—No.

4685. Mr. Wilson, I would like to know your experience about tuberculosis in the dairy trade?—I had very large experience at the time when pleuro-pneumonia was in existence, with Mr. Lawlor, who was the Inspector of the South Dublin Union at that time. I was a witness to him. I saw every case of pleuro-pneumonia that occurred then, and that brought under my notice the cattle affected with tuberculosis, so that I got a great deal of experience that a person not in the same position could not have got.

4686. What would be your views as to the proportion of the dairy cows of the present day that suffer from tuberculosis?—I think we are very free from it in my district.

4687. That is to say that you rarely or never discover a diseased cow?—It is quite a rare thing to discover a cow in my district palpably affected. There might be a great many animals in the district that would not pass the test if it were applied.

4688. I am speaking of the palpably diseased cows?—We see particularly free from tuberculosis in our district.

4689. Have you any idea what happens to the cows that get tuberculosis—are they sold off?—The cattle seem to be very healthy, and it is the Veterinary Inspector who would have to act; and I believe the practice is that he would advise the owner to dispose of the cow as soon as possible. The Veterinary Inspector could give you more information on that point than I could.

4690. You are in charge of a country district?—I am.

4691. Is that a district to which the townspeople send their cows to graze during the summer?—Yes. The cattle go out for five or six months—from April to November.

4692. During the winter months these cows are not under your supervision?—No.

4693. What amount of supervision is given to that type of animal in the summer time when she is on grass in the country?—The cows are put out on the fields night and morning. They are never housed at all there. They have plenty of air space and are removed from manure heaps. The only thing that could happen there would be that the men would not strain the milk or keep their hands clean; but the things that we have to take particular notice of are absent when the cows are on grass. The question of air space or the removal of the manure heap or anything like that does not, of course, arise.

4694. Mr. O'Brien, you say that the people wanting milk, such as the labourer, would probably be able to get it without much difficulty if they had the money and wished to buy it?—Anyone who is prepared to pay the price can get it.

4695. And you think it is more a matter of price than anything else?—Yes. I think the people do not think that the milk is worth parting with so much money for.

4696. They do not recognise the food value of it?—No.

4697. You do not think it is because they would be expected to go out for it at an hour that would be inconvenient to them?—The hour would not be so inconvenient to them. Those who keep cows out in the country, these are go out to deliver milk, say, at 7 o'clock, and that would be a very convenient hour for families to procure milk for breakfast.

4698. But they would have to go and fetch it themselves?—They would have to go to the premises of the cowkeeper.

4699. Don't you think that in one of the difficulties—that they don't think it worth while going perhaps half a mile for the milk. From the evidence we had, it appears that the townspeople won't go across the street if they can get the milk delivered to them?—Children are sent for the milk. Almost every morning I pass by the premises of one prominent dairy keeper in my district, and I see children sent with jugs to the door and the people seem to have messengers enough to go for the milk. I don't believe that the bulk of the labourers set a due value on the milk. There are other things they prefer to the milk.

4700. They only look on it as coloring for tea except for the children?—Yes. It is only for coloring tea that they use it. They don't use it for breakfast. That is out of the fashion. Bread and tea are their main support. They are living a good deal better than they did. A great many of them would not have breakfast without aasher, but I think milk is a negligible quantity with most of them.

4701. In the case of these cows that are housed in the city for half the year and go out to your district on grass during the summer and are milked out in the country, what facilities have the men for cleaning their hands when on the fields?—Where there are cows kept there must always be water to wash their hands.

4702. There is always a supply of water for washing their hands?—Yes. They must have water for the cows.

4703. We have heard that in a summer such as we had last year the water was very scarce, and what facilities would they have then for cleaning their vessels?—Cows cannot exist without water. They must get it. The men live on the farm where the cows graze, and there are some of these places quite destitute of water.

4704. Are the milkers housed?—They sleep out on the farm where the cows are grazed, except the land is very near the suburbs.

4705. Are they housed in actual houses?—They sometimes live in barns and cottages—it depends on the accommodation on the farm, but the men must always be provided with sleeping accommodation where they are any distance from the suburbs.

4706. You are satisfied that they do get proper facilities for washing their hands, and particularly for washing the vessels?—Any of them that come under my notice have an ample opportunity of cleaning their vessels and hands. In fact, they have water for all these purposes. I do not know any place where they have not.

4707. Have they places for boiling water and sending the cans?—Yes. Very often they cook their meals where they sleep. These people all bring in the milk into Dublin and the field cans are supposed to be cleaned in the shops.

4708. The churns or cans would be cleaned when they come into the depot?—Yes. It is very much to the dairymen's own interest to keep the vessels clean, because if the milk was in a bad state it would tell on them. I think the vendors are alive to the necessity of seeing that their vessels are in proper order.

4709. Mr. Brewster Woodhouse, do they use preservatives on the dairy farm—do they put things into the milk for the purpose of preventing it getting sour?—I cannot say that. I know some of them refrigerate the milk on the farm.

4710. How?—With an apparatus.

4711. You are not aware that they put boracic acid or other preservatives into the milk?—No. They might do it without my knowing it. I think it is probable that some of them put perhaps coloring stuff into the milk, but I don't know whether they use preservatives. They would not be likely to take me into their confidence in that matter.

4712. Miss McNelly, a former witness stated that some dairymen sending in milk into Dublin took back in their cans waste from hotels?—I never heard of such a case. You allude maybe to pig-breeding?

4672. Yes.—I don't think such a thing would happen as to bring pig-deadening back in the vessels that brought in the milk.

4673. It was definitely stated here.—I would be very much surprised if such a thing could be proved.

MR. J. D. HENDERSON, M.H.C.V.S., examined.

4674. The CHAIRMAN.—You are a practising Veterinary Surgeon in the City and County of Dublin?—Yes.

4675. And you are also Veterinary Inspector for the North and South Dublin District Councils?—I am.

4676. Can you tell the Commission how many dairies there are registered in the Southern district?—Eighty-nine, and seventy in the North District.

4677. What number of cows would those herds embrace?—1,700 in the South and 1,000 in the North Rural District.

4678. In the summer season, of course, you have almost the entire herd of dairy cows in Dublin grazed in these two districts?—In the three districts.

4679. North and South Dublin?—Yes, and Balrothery.

4680. There are not so many going to Balrothery, only to the Southern end of it?—Yes.

4681. Do you make regular inspections of the dairy-yards in your district?—Yes, once a month.

4682. What is your experience with regard to the number of tuberculous animals in the herds—has the number increased or diminished?—There has been an increase of 150 in the South and of over 100 in the North Rural Districts for the year 1911.

4683. That seems rather an alarming increase. Did any particular circumstances lead up to it?—Some of the dairy-owners got large contracts, and increased their stock.

4684. And they bought the cows indiscriminately, do you mean?—They bought pure cows.

4685. I am not talking about the general increase in the dairy herds, but about the number of tuberculous animals?—These are very few tuberculous animals in my district. The increase that I spoke of is the increase in the number of milch cows in the South and North Districts, not the increase of the number of tuberculous animals.

4686. I am very glad to hear that, because you startled me. Do you think the number of diseased animals in your district has diminished or increased?—They have diminished.

4687. Have you, in the discharge of your duties from time to time, drawn the attention of owners to cows that you suspected of being affected with tuberculosis?—I have.

4688. What course is followed with regard to them?—Any cattle I have a suspicion of I take from the healthy stock and put them on one side, and with the owner's consent I test them.

4689. With the tuberculin test?—Yes, and when they react badly the cattle are slaughtered.

4690. Where—at the Abattoir?—No, at O'Keefe's, at the owner's own request. They get to compensation whatever for the cattle that are slaughtered.

4691. No compensation?—No compensation.

4692. Is not the Local Authority empowered to give compensation?—No, they have no power in the Rural districts.

4693. Is it not given in the City?—It is given in the City, but not in the County.

4694. I was not aware of that. I was rather under the impression that the same rule prevailed in the City and County, and that it was possible for the Inspector to give compensation up to £10?—Yes, in the City, but not in the County.

4695. No such powers exist for giving compensation in the County?—No.

4696. So that in reality the animal that is suspected to the test and found to be affected with tubercle is actually slaughtered with the consent of the owner?—Yes, the "owners."

4697. Will you tell us how many of such cows you have condemned to slaughter, say in the last five years?—Within the last year, six altogether.

4698. In the South Dublin district?—Four were slaughtered in the South and two in the South Rural Districts during 1911.

4699. Do you make an inspection of the residences after the slaughter?—Yes.

4700. To see if there were tuberculous lesions?—Yes.

4701. And you found them?—I did.

I have seen people occasionally, but not in my own district, bringing in refuse, but not in the vessels that had contained the milk. I don't believe it is at all likely.

4702. Mr. WILSON.—It is quite legal for the sanitary authority, whether in the County or City, when he orders the destruction of a cow to give compensation.

4703. The CHAIRMAN.—This is the passage to which Mr. Wilson refers?—"Any sanitary authority may, if they see fit, cause to be slaughtered any milch cow that is certified by a veterinary surgeon to be affected with tuberculous disease of the udder."—The cattle to which I refer are not cattle with tuberculous disease of the udder.

4704. You are differentiating between tuberculous udders and animals suffering from general tuberculosis?—Yes.

4705. Have you found animals suffering from general tuberculosis, and having tuberculous udders?—I have.

4706. Has the number been large?—Out of 100 affected with tuberculosis only three might be affected in the udder. That is very rare.

4707. Mr. CAMPBELL.—Have you read that. Is it your own experience?—Yes.

4708. Have you examined 100 cows?—I have. I test for the majority of the large dairy-owners in the County of Dublin. I test four hundred or five hundred cattle every year.

4709. Is this three per cent. of the animals that have reacted?—Oh, no. Supposing you had 100 cows affected with tuberculosis, only three of that number would be affected with tuberculous of the udder.

4710. How would you be sure of that?—You would want to examine a cow with a bad udder microscopically.

4711. Do you follow up the slaughter of all these animals?—The dairy people get their cows tested. I do not follow these up.

4712. Which cattle do you follow up?—Only the cows that are painers.

4713. You say that there are three per cent. out of one hundred affected in the udder?—Yes.

4714. And I asked you did you examine all these cattle, and you said you had examined hundreds of them?—I have tested hundreds.

4715. But you have not followed up a hundred painers to see whether three or four per cent. were affected in the udder?—No, I never saw a hundred painers.

4716. So that the information you give us must be hearsay information, and not information of your own knowledge?—The matter that I would like to explain is that I have tested a good many cattle. A good many of the large dairy-owners get their cattle tested. I do not follow these up.

4717. How many animals did you say were slaughtered—dairy cows?—Very few, perhaps five or six in the year.

4718. So that you are not in a position to say what percentage of them have tuberculous of the udder?—I have seen very few affected that way.

4719. Mr. O'BRIEN.—What he said was that from the animals he has seen, from inspection and from making the tuberculin test, about three per cent. of them may have tuberculous udders?—Yes.

4720. In the course of his business he has examined very many hundred cattle, and out of these hundreds of cattle about three per cent. may have tuberculous udders?—That is so.

Mr. WILSON.—That is a very large order.

Mr. CAMPBELL.—My point was that, not having an opportunity of seeing the animals slaughtered, he could not tell what the percentage of the cows affected in the udder was.

4721. The CHAIRMAN.—Have you ever condemned a cow for being clinically tuberculous of the udder?—No.

4722. You have not seen such a cow in your district?—No, not in the district.

4723. But you have seen it in your practice?—I have.

4724. You have seen such cows?—Yes.

4725. Do you make an examination of the cows in order to ascertain whether their udders are in a healthy condition?—I examine all the udders of the cattle in my district.

4726. Do you find them suffering from any disease of the udder at all?—Sometimes I find mastitis, and they may get injuries from one cow standing on another—any kind of mechanical injury to the udder.

4727. Do they ever suffer from ulcers on the paps?—Yes.

4728. Have you ever been obliged to suspend the sale of the milk from animals affected with such ulcers?—Yes.

4729. Do you find the owners of the cows are anxious to assist you by destroying the milk and not selling it?—Yes.

4730. Do you find them willing to carry out the directions you give them in that respect?—Yes, they are very willing.

4731. Have you had any difficulty in securing that the animals are kept in proper conditions with regard to an space and such things in the housing?—No, they do these things very satisfactorily.

4732. You have not had trouble in securing the enforcement of the conditions laid down in the Diseases and Milkshops Order?—No.

4733. Have you given any consideration to the question of licensing? Do you think that it would be in any degree helpful to you in the discharge of the duties imposed on you?—I think if the owners were licensed it would do a great deal of good.

4734. You would be in favour of licensing?—I would.

4735. Would you go so far as to take into your purview in granting the license the personal character of the applicant?—I would. I think there are some people in the trade who should not be in it at all.

4736. You would follow in some degree the principle laid down in the liquor trade, that the character of the applicant in the first place should be satisfactory, and that the premises in which he proposes to carry on his trade should be suitable?—Yes.

4737. Have you ever known any representative of a local authority in whose district milk was supplied from your own area come in to ascertain under what conditions the milk is produced?—I have.

4738. In case there had been an outbreak of contagious disease suspected to have been caused by impure milk, they go out and examine the premises and see that they are alright?—Yes. We never traced any disease to the milk in our district.

4739. And you have never been called upon to carry out any alterations or changes in the conditions present in your district by reason of these inspections?—No.

4740. Do you attend the Dublin market?—Yes, nearly every Thursday.

4741. Do you make inspection of the dairy cows exhibited there for sale—of course, I know that you have no official position that would enable you to do so?—Not for nine years, but I had for seven years.

4742. I should like to know your opinion as to whether or not you believe that the class and character of the cows exhibited there for sale are better or worse than they used to be?—I think we had better cattle ten years ago—a better class of cattle.

4743. A good many of these cattle are sold for export?—The majority of the cattle at present do not see the market at all.

4744. They are sold for export without putting their feet into the markets at all?—Yes.

4745. Mr. Wilson.—And these would be the best cattle?—Yes.

4746. What do you think accounts for the remark which you made just now, that the same cattle are not seen in the market at present as it because of the way in which they are sold?—Yes.

4747. Mr. CHURCHMAN.—They are sold in the lair, though it is contrary to the law, and do not go to the markets at all?—Quite so.

4748. Do you know whether or not any inspection is made of the conditions under which the milk is drawn from the cow, or the milk vessels kept whilst the cows are on grass in the summer months?—As far as I am aware, there is no inspection made when the cows are on grass. In fact, last summer I knew some grass farms to which water had to be drawn three miles; there was no water on the farms.

4749. Is it not part of your duty to make an inspection of the cows when out on grass, as it is when they are housed during the winter months?—No, it is not, unless they are reported for some contagious disease.

4750. It is no part of your duty to go and examine a new herd of cows that are sent out for grazing pur-

poses into your district?—No, it is not part of my duty.

4751. Your duties are restricted entirely to the cows that are kept in the district during the entire year?—Yes.

4752. No other officer of the Council makes any inspection of the cows during the grazing period in the summer?—Not so far as I know.

4753. Do you know whether or not those engaged in the milk trade—I mean the workers, are more cleanly in their habits than they were, say, a decade ago?—They are more cleanly than they were. They are all very clean now. And there are arrangements for washing their hands and cleaning the vessels.

4754. Are all these precautions taken in the rural districts which you inspect?—Yes.

4755. Do the milkmen wear overalls?—No; only in the three districts in the South Rural District do they do that.

4756. It is not made a stringent condition, the wearing of these overalls in all districts?—No.

4757. I take it this is one of the permissive powers in the Order, that the local authorities may or may not insist on these being worn?—Yes.

4758. You are familiar with the term "typhoid carriers" in human beings?—Yes.

4759. Do you think that it would be an unreasonable condition to insist that all who are engaged in the milk trade should be subjected to the Widal test, to ascertain whether they are typhoid carriers or not?—I think they should.

4760. You do not think it would be an unreasonable condition to impose?—I do not think it would.

4761. No case has ever come under your observation in the discharge of your duty in North and South Dublin, in which you have found a cow suffering from a visibly tuberculous udder?—No.

4762. And if such an animal should come under your observation, and that you thought danger would arise from the use of her milk, what action would you take?—I would stop the milk of that cow, and report to my authority.

4763. Have you ever ordered slaughter in this instance and paid compensation?—No.

4764. No such case has ever arisen in your district?—No.

4765. And you have had cows slaughtered that you believed were suffering from general tuberculosis, and these were slaughtered absolutely without any compensation being paid?—Yes, and by the owners' consent.

4766. And you think that it is possible that only a small percentage of the number which had been slaughtered would have tuberculous udders?—A very small percentage.

4767. Lady EVERARD.—I see you stated in the summary of your evidence, that a large supply of milk is conveyed to Dublin daily from many districts of Ireland by rail, and that the owners of this supply are not all inspected by a veterinary inspector, and that consequently it is an open question as to the condition of the milk?—Yes. I have nothing to do with the milk that comes into the city.

4768. Dr. MOOREHEAD.—Do you believe tuberculous could be cured in a cow?—I do not believe so.

4769. You have never tried any treatment with tuberculin?—I have tested with tuberculin.

4770. Do you think it possible that the disease could be cured by tuberculin?—I do not think so.

4771. You have never tried any systematic treatment for the cure of tuberculous?—No.

4772. Mr. WILSON.—I see you state in your summary of evidence that in your district there are several of the large owners who make a rule of allowing their cattle out on grass for a few hours daily in the winter, and that they also have them tested for tuberculous, and that the reactors are separated at once and disposed of?—Yes.

4773. Do you know how many cattle are represented by these herds that are free from disease?—I do five sheds in the South Dublin Rural District every year.

4774. How many cattle in each shed?—One hundred or more of them.

4775. Would they run to 300 cows in the five sheds?—Yes.

4776. Of these three hundred cows there are none that would react to the tuberculin test?—Twenty to twenty-five out of each hundred would.

4777. The ones that are left would not react?—No.

4778. And these are exclusively in these large sheds to which you have referred?—Yes.

4770. For how long is this going on?—Five years.
4780. What is done with the reacting cows?—They are put into a large shed on the same farm. They are tested.

4781. Are the owners satisfied that they can make their milk trade pay?—Yes, perfectly.

4782. These are concentrated sheds?—Yes, the majority of these cattle in my district are out for about four hours every day in the winter time.

4785. People are applying the test in that way when they are receiving their stock?—They keep the new ones until they are tested.

4784. They are not tested at the expense of the men from whom they are bought?—Some people will not buy until the animals are tested.

4785. Is it possible in Dublin Market to buy a cow subject to the guarantee of passing tuberculin test?—Yes.

4786. Do you test them as a matter of fact?—Yes.
4787. In the market place?—No.

4788. Where?—In my own yard.

4789. Do these cows come in from the country?—From the fairs.

4790. They are brought to your premises, and you test them?—When the men get them he keeps them for a couple of days until they calve, and they are tested. I make these tests for private customers and institutions.

4791. Mr. WILSON.—I am afraid I have got relay. I am speaking of the five sheds of cattle?—These are dairymen's cattle; it is as these I am talking about.

4792. You say that the men who own these sheds go into the market and buy cows?—Yes.

4793. At whose expense as the cows tested?—At the owner's expense.

4794. At the dairymen's expense?—Yes.

4795. I wanted to know whether it was possible for a dairymen to buy a cow in the Dublin market subject to the passing of the tuberculin test?—Private owners can buy them.

4796. Is it of dairymen I am speaking?—The dairymen cannot.

4797. The dairymen in business cannot buy a cow subject to a guarantee from the seller?—No.

4798. In point of fact, having bought these cows they put them into isolation sheds and you test them at the dairymen's expense, and you report the reacting cows?—Yes.

4799. These cows are brought in at the time they are springing?—Yes.

4800. You test them after calving?—Yes.

4801. What happens to the reacting cow's milk?—That is a question I cannot answer.

4802. Mr. CAMPBELL.—You do not suggest that that milk should be put down the sewer?—No, the cow is fattened off and sold.

4803. Mr. WILSON.—After finishing her milking season?—Yes.

4804. Mr. CAMPBELL.—You said you brought some into your yard to test?—Yes.

4805. If you bring in a cow and she reacts, what happens?—She goes back to the dealer. I test them on a Monday, and the dealer must have them in the market for Thursday.

4806. He does not let it be known that you had tested the animal?—No.

4807. There are five sheds, you said, that are free from tuberculous?—Yes.

4808. Is this private information you are giving us, or can we hear the names of the places?—Yes, the names are—Mr. Warren and Mr. Hughes, both of Rathmahon; Mr. Terbell, of Dandrum; Mr. Muldoon, Tallaght; and The Bettle Dairy Company, Ballyman, Rastay.

4809. These people may be said to have cows that have been tested, and that the milk is pure?—Yes.

4810. You do not test any in the North Dublin Union?—Yes, one for the Bettle Dairy Company.

4811. You test no dairy herds there?—I tested one dairy herd in the North Rural District.

4812. How long have these people been getting their herds tested?—For four years.

4813. What percentage do you find are reactors?—About 25 per cent.

4814. That is low, is it?—From 25 to 50 per cent. It depends on whether the cows are old or not.

4815. Do they know from these cows that are tested?—No, they get rid of them as soon as they possibly can.

4816. When you have tested these cows, and they are expected, is it a quite distinct shed that they are put into?—Yes.

4817. Are the sheds of such a size that one holds three-quarters of the cows?—In some cases there are seven sheds. Of course, they have not all the same number of cows. I test the cattle up in the Viceroy Lodge and also for Lord Inveragh.

4818. Mr. O'BRIEN.—You say, as your summary of evidence, that several of the owners make it a rule to allow their cattle out on grass for a few hours daily in the winter time?—Yes.

4819. What do you mean by saying that this undoubtedly adds to the quality of the milk—in what way would it affect it?—Would it increase the butter fat?—These cattle that I test are kept in on the day I test them, and they lose a certain quantity of milk, and they say the quality of it would not be so good, owing to the fact that the cow is kept inside.

4820. Mr. WILSON.—Is that not the ordinary loss of milk that accompanies any change in the habits of cattle?—Yes.

4821. Mr. O'BRIEN.—I want to know what you mean by saying it improves the quality of the milk?—I think a little grass would add to the quality of it.

4822. You say lower down here, "I have experienced many cases where dairy farmers had to convey water to the cattle under great difficulties," and further on you say, "Another source of contamination is washing milk cans in streams which are sometimes polluted with sewage; also allowing too much manure to accumulate on the premises, and having the outdoor drains improperly flushed." Is not this the same distinct as Mr. McGee's is in—is it not the dairy inspectors?—I do two districts, North and South Dublin.

4823. We got from him that there was always plenty of water for washing purposes, and things of that sort?—Not in the North side. I may tell you that in the North side they have only a very inferior water supply. They have only the river there, and the supply is questionable.

4824. You say—"I am aware in the country most of the milk goes to the creameries, and it is quite natural that the city must suffer, and that milk is sold in Dublin at a price that it could not be produced for, notwithstanding the limited supply." I do not know what you mean by that?—This milk is sold in the town at 3d. a quart.

4825. That is not milk?—It is supposed to be.

4826. I see that what you mean is that so-called milk in Dublin is sold at a price which shows that it cannot possibly be milk?—Quite so.

4827. On the whole, do you find that when the cows are sent out into the country from the city during the summer months, the milkers have water for cleansing their hands and the utensils? I think you said that does not come under your inspection?—No.

4828. But you would have probably noticed?—In some places I noticed that the water was very scarce.

4829. There would not be facilities for boiling water for cleansing milk cans and so on?—I think that would be very questionable.

4830. You said that that does not come under your inspection—do you only inspect animals?—That is all.

Mr. J. J. Cusack examined.

4831. The CHAIRMAN.—Are you engaged in the milk trade in Dublin, Mr. Cusack?—Yes.

4832. For how long?—Over four years.

4833. Do you live in the district of Rathmahon?—I do. I had five other dairies in the City of Dublin.

4834. You have concentrated all your trade now in this particular place?—Yes.

4835. Do you keep a large herd of cows?—No, I keep none. I am a purveyor of milk.

4836. Do you take in milk and retail it?—Yes.

4837. From what districts do you get it as a rule?—From the city and Rathmahon. Since I was asked to give evidence here, I prepared this book of notes as to my experience in the milk business. I think there are lots of interesting particulars in it that I would like to bring under your notice.

4838. Do you suggest that you should read these for the Commission?—Yes, and you could question me afterwards.

6393. Certainly.—Having read the reasons why you are investigating the alleged secrecy of milk in some parts of Ireland, I venture to suggest that most of the fault lies and is based on ignorance as to how to manage the farm and the stock. The first step that should be taken is to educate the farmer as to the best methods for producing the most satisfactory results as regards the breeding of the stock, and the age at which the cattle are generally increasing in both the quality and the quantity of milk, which would be about eight years. It is a well known fact that farmers in the most remote parts of Ireland act entirely on a system of their own in stocking the farm, viz., they rear the calves for two motives—first for sale, if they get what they think is a fair price, and second for replacing the milk cows sold from the stock. The great fault in that system is that they in most cases sell the best and most saleable of the cattle and take chance as to how the younger ones will turn out, and that keeps going on for years until nearly all the best of the cattle are sold, and they have nothing in their stock but inferior cattle, sometimes small and even deformed, and in a great many instances lame, and sometimes delicate, which is almost a sure forerunner of tuberculosis and other disease. There is another point which may be raised, and that is, the same breed will not thrive on all lands and give the same results. Then the question arises—what are the most suitable for the different kinds of land, and on giving a little thought to that matter, instruction can be given as to the districts affected. In certain months of the year there is a great demand for new milk cows in large towns and cities, and hence commences the evil trading of the sale of the new milk cows. The cowkeepers in the vicinity of large cities often pay for a new milk cow more than the market value and would be glad to get some of milk cow source. What happens? The farmers sell the best springs they have at the time in order to fetch the highest penny. But the loser in the end will only be the farmer. When milk is scarce, butter is scarce, and the farmers cannot produce, because they have no cows. Concerning contamination and how it should be guarded against; first, great care should be exercised by the farmer or cowkeeper in attending to the cattle as regards their temperament, in order to get satisfactory results. I owned a farm in West Cork and I noticed that cows in the first year's milking were very timid and restless, and if they are treated at that time badly they never turn out good milkers. I would like to bring forward an illustration that appeared in the newspaper a few months ago about a Jersey cow on the C. J. Hood farm at Lowell, Mass. I have been in that place myself and I know it particularly well, and the paper states that the cow produced a net profit of £75 a year and produced 14,773 lbs. of milk, equalling 1,005 lbs. and 11 oz. of butter. That is an illustration of the cow.

4840. Oh, yes, Mr. Croin, please.—The cattle should

be fed and milked regularly, and much care should be exercised in the grooming of cattle and the cleanliness of the milker. Great care should also be exercised in the ventilation of dairies and cowsheds, and each cow's milk should be thoroughly strained before being mixed with the bulk, and should any dirt ever come in contact with the milk, such as a kicking or putting its legs into a pail, such milk should not under any circumstances be mixed with the bulk of milk. It would not go to waste if used for calves or pigs as soon as convenient after the occurrence. I have known this to be done even in the neighbourhood, viz., dirty milk being mixed with the bulk. The best way to get over that difficulty is to introduce into Parliament a new code of laws governing the milk business in all its branches, as the present system is only a one-sided law, and only helps the culprit, and helps to ruin the honest man. I have seen where purveyors of milk were fined for having on their premises dirty cans, although such cans did not belong to them, they belonged to the wholesale man who supplied them with milk. And I have often seen dirty churns sent to purveyors of milk, and have often told the supplier to have their churns properly cleaned. I have reported same to Inspectors, and when a caution came from the Food and Drugs Inspector the following day the churns were properly cleaned. I have known purveyors of milk to sell a mixture of water and milk, more especially in the evening, when no inspectors are taking samples, except on very rare occasions, viz., from 6 till 10 or 11. I have also known churns and cans to be put out of the Inspector's way, so that they could not be inspected, and this is more frequently done by suppliers than by retailers. I am not in any way speaking in favour of purveyors of milk, because there are lots of them that should be compelled to give up the trade altogether. I would be in favour of every dairyman and purveyor of milk being compelled to take out a licence, and that such licence should be renewed yearly, and then in cases where people are fined for fraud, adulteration, and dirty vessels, for sour milk, and for stale mixed milk sold as new milk, they could be dealt with easily, by referring to grant them a licence, and compelling them to put their business up for sale, and if same would not be sold in two months from date of notice, a compulsory order should be served on them, and their premises closed down for good. Then we would soon have honest, straightforward dairymen and purveyors of milk, and the death-rate would lessen, in my opinion. I may state that I never read the newspaper reports of this Commission, and I put up this statement from my own experience.

4841. We have now come to the hour at which we generally adjourn, and we are not able to finish your examination?—There is a good deal more that I would like to say.

We may be able to hear you at a later stage.

The Commission then adjourned to the following morning.

FOURTEENTH DAY—FRIDAY, 26th JANUARY, 1912.

The Commissioners met at No. 5, Upper Castle Yard, Dublin.

Present.—P. J. O'NEILL, Esq. (Chairman), LADY EVERARD; MISS MARGARET McNEILL; SIR STEWART WOODHOUSE, M.D., GEORGE A. MOOREHEAD, Esq., F.R.C.S.I.; ALGER WILSON, Esq.; DERMOD O'BRIEN, Esq.; and JOHN R. CAMPBELL, Esq., B.Sc.

S. W. STRANGE, Esq., Secretary.

THE COMMISSIONERS OF MILK CONTINUED.

4842. The CHAIRMAN.—You are a resident in the County of Kildare, Lady Mayo?—Yes.

4843. And you have taken a generous and kindly interest in the well-being of the poorer population of your district?—Yes, it has interested me very much.

4844. And the fact was brought under your notice that a difficulty arose with regard to the supply of milk for the children of the poorer classes?—Yes; the nurse

told me that two babies were dying because they could not get milk, and some of my own friends found it quite impossible to get milk, so naturally the poorer people could not get it.

4845. That has forcibly directed your attention to the necessity of taking steps to provide for this want?—Yes.

4846. Might I inquire by what means you propose

to meet it?—A year ago I sent in milk from my own dairy in a cart to the town of Nass, but I could only send from about six to twelve gallons a day, and that was nothing at all, having regard to the necessity which existed. It was not sufficient to supply the poor people.

4847. It was not quite sufficient?—Not nearly, and after finding that the poor people did really want milk, I got two friends of my own to help me, and we all sent in milk. Lady Albeada Bourke and myself sent it in in the morning, and Mr. Flood, a resident in the district, sends it in in the evening. We sold the first week that we started sixty-eight gallons, and this last week we sold one hundred and forty-five gallons, so you will see we have increased considerably in the sales.

4848. May I inquire if Mr. Flood is a gentleman supplying milk on purely commercial lines?—Yes. He is a butcher in Nass.

4849. I take it you have a contract with him to supply a certain amount?—Yes, ten gallons a day.

4850. You have experienced no difficulty in getting customers to send in milk at a reasonable price?—Not at all. I have had two or three requests that we should take the milk from different people.

4851. Is the demand for the milk continuous and steady?—Quite, except on occasional fair days it is not so easy to sell the milk. They do not come for it so much on these days, because there are so many cows about.

4852. There is a supply free on these particular days?—Yes.

4853. What price do you charge for the milk?—Our shilling per gallon now, and we pay 25d. per gallon for it.

4854. And you have no difficulty in procuring a supply at that price?—None at all.

4855. Have you had satisfactory reports from your nurses on the improvement made by the altered conditions of the infants as a result of your enterprise?—We have only started three months, but she said that it had made a great change in families—that the poor people can get the milk, and that there is no excuse for them now in not getting it. And the people themselves, I think, are most grateful, because we have had many opportunities of judging of that.

4856. And you have not had any complaints as to their inability to buy milk for want of money?—No; of course, for the very poor people we have books of tickets which are bought by the Vincent de Paul Society and the Women's National Health Association; they supply the very poor with three tickets when it is absolutely necessary.

4857. Omit?—Yes, from a claimable point of view.

4858. What I wanted to know was whether you found amongst the working classes any inability to buy milk owing to want of money?—Not generally. There may be cases, but I do not know of them. We have not found them.

4859. Would the people procuring milk from your depot be ordinary field labourers, or what occupation do they follow?—They are labourers principally.

4860. Is any difficulty experienced in the rural districts round Nass in procuring milk by the poor people?—I think so, but I think it is due to want of co-operation. There is milk, but somehow the people are not able to get it.

4861. It is not exactly through the complete absence of a supply of milk that they are unable to get it, but through the absence of people willing to sell in small quantities?—Yes.

4862. And it only needs a little organisation in order to make a supply available?—Yes, plenty of people would sell, but they do not know where to send the milk, and they do not bother about delivering it around the district.

4863. Do you deliver the milk from your depot?—No, we do not deliver it; the people all come to the shop.

4864. Do people from outside the town come in to your shop for milk?—Yes, but not from far out—people within half a mile or a mile of the town, not further out than that.

4865. And you have not experienced any loss by reason of the demand being fickle, the demand to-day falling very considerably below the quantity required to-morrow?—No.

4866. Is there a dairy inspector in your district?—Yes, and he visits us constantly.

4867. Do you think the work of inspection is efficiently carried out in your district?—Yes, it is very good. My dairy has been inspected twice within the three months, and other dairies have been inspected also, and samples of the milk are taken.

4868. And you have no reason to believe that the cow-keepers do not carry out the regulations in the Dairies and Milkshops Order?—I think they are well looked after in our district. In fact, that is causing a severity of milk—the operation of the Order.

4869. Do you attribute the severity of milk to the enforcement of the Order?—Yes, because a lot of small people who kept cows not properly housed have all been swept away, and rightly so.

4870. Because of the conditions in which they kept the animals?—Yes.

4871. And their failure to comply with the regulations laid down in the Order?—Yes.

4872. Even though it has led to a deficiency in the supply in your district, it is a wise administration to bring their cows to an end?—Certainly.

4873. Your depot in Nass is run, I presume, under the Women's National Health Association?—Yes.

4874. And, of course, you have the co-operation of the leading residents of the district, and they are sympathetic and helpful with regard to the project?—Yes, we have a committee. Two very good friends of mine in Nass really run the depot for me. They live in the town, and take the money and check the accounts every day.

4875. Have the payments been regularly made for the milk?—Yes, always over the counter.

4876. You give no credit?—We give no credit at all.

4877. Lady EVANES.—Do you consider that the amount of twopence per gallon pays you to run the depot?—It does.

4878. I take it that you have a manager?—We have a young woman in charge who lives at the depot. I am rather fortunate, because this depot is in a little house that has got three rooms upstairs and three below, and we let some of the rooms, which pay the rent of the house. There is a very good water supply to the place.

4879. Do you keep the milk for sale in one room?—The milk is kept in large white china jars, with mashes over them, in the shop.

4880. You find that the people come in and pay quite willingly for the milk over the counter?—Yes, we have no difficulty about that. The only difficulty is in getting them to bring clean jugs. They sometimes bring very dirty jugs, but they are beginning to keep them cleaner. There is fortunately a pump outside the house, and we get them to go there to clean them.

4881. The CHAIRMAN.—You advise customers with dirty vessels to pay pecuniary visits to the pump?—Yes, when the jugs are dirty we send them there.

4882. Lady EVANES.—The book of tickets you spoke of are for a pint of milk?—Yes.

4883. For 1½d.?—Yes.

4884. The CHAIRMAN.—I omitted to ask you if you were conscious of the fact that there is a similar enterprise carried out in an adjoining town?—There is at Carlow. We went to Carlow before we started our depot, and we are running it on similar lines. They are running the depot in Carlow for three or four years with great success.

4885. What is their output?—I cannot tell you that.

4886. Do you happen to know of the price for the milk is the same as you charge?—No, it is lower. But I think you must go by the price of the milk in the town. You cannot undersell local traders.

4887. You take cognizance of the price at which the milk is sold in the town?—Yes, we have the usual rate charged in the town. We first asked the people who sold milk if they would increase their supply for the poor people more than a year ago, and they refused.

4888. So that you were obliged to adopt another method?—Yes.

4889. Dr. MOOREHEAD.—You get your supply by contract from some of the local suppliers?—Yes.

4890. Did you make a contract with the local supplier for so much?—Yes.

4891. Is it your experience since you have started this depot, that people get milk that heretofore got none at all?—I cannot answer that question, I think. I am afraid I do not know.

4992. The demand for milk has increased?—Yes.
4993. And there must be people who now get it who did not get it before?—That is so, I suppose. We also sell cream and skim milk at our depot.
4994. Is it taken off by a separator?—No.
4995. It is cream in the ordinary way?—Yes. There is a great sale for skim milk.
4996. And you are sure that the margin of twopence a gallon enables you to pay the expenses connected with the depot?—It does.
4997. Mr. WILSON.—You, I gather, do not pasteurise the milk?—No.
4998. You get it as clean as possible?—Yes.
4999. Do you insist on certain conditions—have you standardised it or made regulations in that way?—There must be a certain amount of cream on the milk, but we never had any difficulty on that point.
5000. That has proved satisfactory?—Quite.
5001. There is one point you may be able to enlighten us about in connection with the Women's National Health Association. Would you be of opinion that the scarcity of milk, particularly in a little country town of the type of Naas, had really existed for quite a long time, and that it is the focussing of public opinion on the matter that has directed attention to the scarcity now?—I think the scarcity in Naas only existed since the Dairies and Milkshops Order came into force. Up to that time there was a sufficient supply, but the milk was not good.
5002. There was plenty of bad milk?—Yes, the milk sold in Naas is very poor in many cases. Some of the poor people have told us that our skim milk is better than the new milk they buy in other places.
5003. Mr. O'BRIEN.—The village pump is too handy?—I do not think the milk is watered, but the people do not feed their cows properly.
5004. Mr. WILSON.—Your depot is a combination between the producers of milk—the farmers?—There are only three of us in it altogether, myself, Lady Alberta Bourke, and Mr. Flood.
5005. If your scheme proved it would be on the lines of a combination of milk producers in a central depot?—Yes.
5006. You are not attempting organisation among the consumers—that they should come together and send one messenger to the depot for milk for three or four houses?—No, each individual must come for the milk.
5007. You said you insist on cash?—Yes.
5008. Naas, I think I am right in stating, is a town in a beef ranch area—there is no tiffage?—No.
5009. And not much dairy farming?—No.
5010. And there are no creameries?—There are no creameries.
5011. So that your scheme rather points to a solution of this scarcity in towns of the type of Naas?—Yes.
5012. Of course there are many towns of this type?—Yes.
5013. Have you any experience in the matter of tuberculosis amongst the dairy cattle in your own area?—I have not.
5014. It does not appear to be present?—Not so far as we know.
5015. Mr. O'BRIEN.—Are the labourers that you supply with milk living in Union cottages, or are they practically living in the town?—Some of them live in the town, and some in cottages, too.
5016. Union cottages?—Yes.
5017. Do the other labourers who are not in Union cottages obtain your supply of milk from the farmers?—No.
5018. Do they get the grass of a cow?—No.
5019. There must be plenty of hands about the district?—Yes.
5020. How do they get their supply?—I cannot say.
5021. Do you know at all, or have you any figures to show, the quantity of milk per head for children bought by the families coming to your depot for milk; when people ask for a quart, do you know how many there are in that family?—No. They never ask for a quart, they ask for a halfpennyworth or a pennyworth.
5022. You cannot say whether the children are getting an adequate supply of milk?—I imagine they do not have enough. The people are very poor in Naas.
5023. My experience is that although a family may be getting a pint or two pints of milk a day, very often a family has a large number of children and that this quantity of milk does not go very far?—It does not.

4994. You do not know yet, I suppose, the numbers in the families—the Women's National Health Association would look that up?—Certainly, we can do that.
4995. And urge on them that they might spend a little more money on milk?—Yes.
4996. So far you do not know the number in the families?—No, I cannot say.
4997. Do you think that the food value of milk for growing children is appreciated?—I think so.
4998. Not merely for infants, but for growing children?—Yes, although they are having too much tea.
4999. Do they eat oatmeal porridge?—Yes, but not very largely in Naas.
5000. Do they buy skim milk to go with it?—Yes.
5001. You say you have a considerable sale for skim milk?—Yes.
5002. There are no creameries in your district and you have no expanded milk?—No.
5003. You do not know whether there would be a prejudice against it?—I do not think there would.
5004. Is it an association that is in charge of the depot?—There are only three in the committee who are running the depot.
5005. I suppose if the demand were extended your idea would be to extend the association among other milk suppliers of the district?—I am afraid we have not thought of that yet, we have been going on only for three months.
5006. I was wondering whether you would have any regulations for your manager to see and inspect the sources of supply?—No.
5007. At present the inspection is being done by the official dairy inspector?—Yes.
5008. I was wondering whether you made out any rules for your association, keeping to yourselves power for your manager to go and see the sources of supply?—We would, I suppose, but, of course, there are only three suppliers at present.
5009. And you did not think it necessary?—No, especially as we and the other dairies are visited by the dairy inspector.
5010. Sir BRUCE WOODHOUSE.—With what object is the skim milk chiefly bought?—Making the bread, and also for the porridge.
5011. They use it instead of new milk with the porridge?—Yes.
5012. For the children?—Yes.
5013. Are there other dairies in Naas?—There are.
5014. Is there much milk left unsold at the end of the day in your dairy?—Not very much. Of course, we set the milk for cream, and if there is cream over—there is never any milk over—we make it into butter. It is a bit difficult to gauge the quantity of milk required.
5015. Do you know if preservatives are used in the milk?—No.
5016. Miss McNAMARA.—With regard to the expenses of the depot, I think you said in a memo. that I have seen that it would cost you about £46 a year to run the depot?—Yes, I have the accounts here. It costs us about £1 per week, and off that we take the rent of the rooms that we let.
5017. That £1 includes the rent, and the coal and wages, and the general upkeep?—Yes, and the rates and cost of repairs. I can let you have a full statement of accounts.
5018. Do you think that £1 per week would be the usual expense attached to a depot of that sort?—Yes, that is what we found.
5019. Lady EVERARD.—I suppose very much would depend on the rent you would have to pay?—Yes, we pay 5s. 6d. a week.
5020. You told Mr. Wilson that you required a certain percentage of cream in the milk?—Yes.
5021. And so far as other conditions are concerned you think it is sufficient to satisfy the dairy inspector?—Yes, and we do that.
5022. Mr. CANNING.—Is it intended that this depot shall be duplicated all over the country where there is a suitable place under the Women's National Health Association?—I cannot say.
5023. You are not in a position to say to this Commission that the Women's National Health Association intend to establish these depots all over the country, and that we may count on this being a factor in the future in the supply of milk?—No, I am not in a position to state that. I can only answer for my own branch.

4954. This is merely an experiment in Nant?—Yes.
4955. And whether it is to be extended under the Women's National Health Association has not yet been determined?—Not so far as I know.

Dr. JOHN LAMBERT examined.

4956. The CHAIRMAN.—You are for many years residents in the City of Dublin, Dr. Lambert?—Yes.

4957. You are a physician to Moore's Hospital, and chief medical officer to Guinness's Brewery?—Yes.

4958. And you have considerable experience of the manner in which the infant population is fed?—I have.

4959. Do you believe that a sufficient supply of milk is available for the feeding of infants?—My experience is in rather a restricted area not altogether allied with others in the city. It is confined mainly to the employees and their families at Guinness's Brewery, where the people are better paid than the average labourer and better looked after. I also have an advantage in dealing with my patients owing to the liberality of the Company.

4960. There is no inconvenience arising with regard to the difficulty of procuring milk, or as to the condition of the milk that is available for the food of the infants?—No, not that I know of, but I think there is a difficulty in procuring a sound milk.

4961. That is exactly the question that I would be glad to hear your opinion upon. Have you reason to fear that the milk supply is not always in a pure condition?—Undoubtedly.

4962. Has any effort been made in the recent past to improve the condition in which the milk is supplied?—Yes. As one example I may mention the Sincro Head Depot, run by the Women's National Health Association. I have some experience of it.

4963. The Commission would be very much obliged if you would give us your experience?—In 1908, as the result of a recommendation of mine, the Company gave me permission to supply at their expense milk bottled and pasteurised to my baby patients, and since 1908 I have had under observation one hundred and twenty babies up to twelve or fourteen months of age. Some were all sick babies, some very ill indeed. One of the rules was that milk was never to be given unless I was satisfied that the mother herself could not nurse the infant. The results have been extremely satisfactory. Every woman who gets the milk for her infant gets this paper in my hand, and she has to promise to carry out the instructions contained in it, and bring the baby to me once every month for weighing and inspection, and I have a book in which all the particulars are taken down. If the baby is sick it has to be brought back, so it is constantly under my observation. Among these hundred and twenty children, many of whom were wretched specimens, the number of deaths was only five, which is 41 per thousand, as against 145, the general death-rate of Dublin.

4964. You have supplied milk through the benevolence of the company to these children?—Yes.

4965. And have you obtained that milk from the Sincro Head Depot?—Yes. The Sincro Head Depot has, from the medical man's point of view, a great many advantages as it prepares the milk mixture just like a prescription, and I am a great believer in the depot. For the last fifteen or twenty years in France, certain depôts have been in existence, the "*Gouttes de Lait*," and the "*Consultations de Nourrices*." Five or six years ago there were a hundred of these in France, and a great many have been established since then. The milk is humanised and sterilised at 105° Centigrade for three-quarters of an hour in the "*Gouttes de Lait*." I have also experience of the depôts in England, including Battersea, Lambeth, and Liverpool.

4966. How are they subsidised?—Liverpool is under municipal control—and under the direct supervision of the medical officer of health.

4967. It is subsidised by the Corporation?—Yes.

4968. And does the same apply to Battersea and Lambeth? they are under municipal control?—Yes.

4969. And subsidised by local funds?—I believe so.

4970. Have you any figures to show the Commission the amount of subsidy given?—I have not time to look it up, but perhaps you will get the information in Dr. McNairy's book. He is the medical officer at Battersea. I can easily get the figures for Lambeth, as I have there at home, if you wish.

The CHAIRMAN.—Thank you very much, Lady Mayo, for your very interesting evidence, and for the attentiveness you have incurred in coming before the Commission.

4971. We would be obliged if you did?—They give fully sterilised milk or pasteurised milk in the depôts.

4972. Do you happen to know whether the depôts in France are under municipal control?—The majority are conducted by philanthropic societies assisted by subsidies from the municipalities, but in some towns they are a municipal institution.

4973. Or whether they are locally supported?—They are locally supported by the hospitals.

4974. You do not know whether there is a subsidy out of the public funds?—I cannot say, they are connected with hospitals. Pasteurised and sterilised milk are given at the depôts. I am a strong advocate of pasteurisation.

4975. We would be glad to hear your views?—I am not a scientist. I am a clinical observer, but I have never seen any harm arise from pasteurised milk. The milk at the Sincro Head Depot is pasteurised and humanised, and I understand from a long conversation with Dr. Hope, the medical officer of Liverpool, that he has never seen any harm arising from fully sterilised milk amongst the babies under observation in Liverpool. It is maintained that if you bring milk to a certain temperature this interferes with the enzymes or ferments, but as a clinical observer I have never seen any harm resulting from the use of pasteurised milk amongst children.

4976. And you do not think the food properties of the milk are injured by pasteurisation?—I have never seen harm arise from the use of pasteurised milk.

4977. It is in controversy at the moment whether the properties of the milk are injured?—Yes, there is Bulletin No. 41, issued by the Public Health Service of the United States, containing a series of monographs by men in America who have gone into every aspect of the milk question. On pages 490 and 625 it is stated there is abundant evidence to prove that milk heated to 60 degrees Centigrade (140° Fahr.) for twenty minutes is "live" milk, rich in enzymes; that it does not deteriorate in quality and that most of the pathogenic organisms are killed.

4978. There are certain illnesses amongst children resulting from the food on which they are brought up—rickets and scurvy?—Yes, but I have never seen a case of the kind arising from bottled or pasteurised milk.

4979. Have you ever seen a case of rickets or scurvy in a child fed on milk supplied under your prescription?—No, I have given it to children who had scurvy or rickets and they have improved on it. I should like to mention that I am in the habit of ordering orange juice as an addition to be given two or three times weekly to babies getting pasteurised milk, to supply the anti-scurvitic properties which it is believed may be injured by the heating; and Dr. Hope told me that in Liverpool they give scraped potato juice at the children's hospital.

4980. There are particularly troublesome maladies in children—rickets and scurvy?—Yes.

4981. Your belief is that they are very largely consequent on the manner in which the child is brought up?—Yes, from want of good food, especially of fats, and want of sunlight and fresh air.

4982. And where children are reared on good milk the danger of these maladies arising is considerably reduced?—Yes. Of course, I would not for a moment have you think that I am of opinion that pasteurised milk is an ideal food. The ideal condition is to have the milk obtained produced from a healthy stock, cleanly handled and delivered under hygienic conditions, preferably in bottles, because I have no doubt that a great deal of disease gets into the milk in the course of transit. There is this danger of infection, and in order to minimise the risk the best thing is to pasteurise the milk.

4983. You only recommend pasteurisation as a safeguard for which it might be difficult otherwise to provide a substitute?—Quite so.

4984. You, of course, are familiar with the Widal test?—Yes.

4985. Do you think that very considerable danger comes to the population of a city generally by typhoid carriers?—Yes.

4986. Would you be in favour of having all these people engaged in the occupation of milk handling subjected to the Widal test?—The test is not a difficult one. It is only a prick. It is a question that I would rather refer to some person like Professor McWenney.

4987. We would be glad to have your own opinion?—I would certainly say yes, as far as I know anything about it.

4988. It has been stated to the Commission that the test does not interfere with the comfort of the individual?—Not at all.

4989. And you think it is a reasonable precaution to which, in the interest of the public health, those engaged in the trade should have no objection to subject themselves?—Certainly.

4990. Have you had experience of the conditions under which infants are nourished in the City of Dublin outside your own special connection with Messrs. Guinness's employees?—My experience outside Guinness's is not amongst the poor; at my hospital I come across a good many cases, but not many children.

4991. Do you think that many of the infantile residues are introduced into the system through sickness or impure milk?—Yes, I believe they are.

4992. And that it is a reasonable demand to make that every precaution should be taken to secure a cleaner and purer supply?—Most certainly.

4993. And as this might lead to an increased cost in the production of milk, the public would have no right to complain of the extra expense undertaken in order to secure their own welfare?—Certainly.

4994. Have you had experience in the use of skim milk?—Not much. But there is no doubt about it that skim milk is a valuable food for older children and adults if given with other food, and on that point I might mention that I have seen some figures here showing the food value of skim milk as an economical dietary:—Ten ounces of breast and one pint of skim milk, at a cost of twopenny, possess 934 calories of food value, whereas—soup, 8 oz.; beef, 2 oz.; potatoes, 3 oz.; turnips, 2 oz.; bread, 4 oz.; butter, $\frac{1}{2}$ oz.; coffee and milk, 1 oz.; sugar, $\frac{1}{2}$ oz.; which would cost about 8d., have a food value of 940 calories.

4995. At four times the expense?—Yes.

4996. Do you happen to know, Dr. Lumsden, that skim milk is used for the grown children amongst those under your care—I am not speaking of babies?—I think it is to an increasing extent. I have been trying to encourage its use more amongst adults and older children.

4997. Do you think that those in charge of children realise actually what the food-value of milk is?—I do not think they do. It is a most valuable and most economic food.

4998. Is condensed milk used in your experience?—It is.

4999. Have you any view as to its dietetic value?—I think some of them are very good, and, as a clinical observation one finds a baby occasionally thrive better on condensed milk than on ordinary milk mixtures. But that is unusual. I have been using lately a thing called abductin; we have been hearing a good deal about it in medical circles. It is milk albumen, which is most vital to the infant's growth, and which is found in the milk of the mother, but not in that of the cow. At the Depot they add it when specially ordered on my prescriptions. Abductin is added to the milk, and I believe very delicate children have markedly improved on the milk to which is added abductin.

5000. Does it require to be prepared under medical supervision?—No, it is added to the milk in prescribed quantities.

5001. Mr. CAMPBELL.—Is it soluble albumen?—Yes.

5002. The CHAIRMAN.—Is it expensive?—Yes, that is the worst of it.

5003. Mr. CAMPBELL.—What is it prepared from?—I cannot say.

5004. Lady EVERARD.—Have you had any experience of separated milk?—Very little.

5005. Have you any experience of dried milk?—I have very small experience of it.

5006. Dr. MOOREHEAD.—Is it your available practice to add orange juice to the milk prepared at the Strick-road Depot?—The mothers are advised to give it.

5007. Have any of these hundred and twenty children that you spoke of been reared exclusively on pasteurised milk without that addition?—I think in a number of cases they did not get the orange juice.

5008. You never noticed any case of rickets or scurvy?—No.

5009. And of the five deaths, were any of them due to tuberculosis?—Clinically there was no definite evidence. Two cases of infantile atrophy, one of marasmus, and three of pneumonia.

5010. I take it that your idea would be to give the children the milk as it comes from the cow, as the most ideal thing, without any alteration?—Yes.

5011. That is the best form and the most disseminable for the human being?—Yes, properly diluted, of course.

5012. I take it that you would suggest a system of control of the milk?—Yes.

5013. Strict supervision?—Certainly.

5014. In those food values that you have given us—the ten oz. of breast and the pint of skim milk, and this other expensive bill of fare, would the latter be a more substantial diet?—Yes, I would rather eat it myself than the other.

5015. You would get more out of a man who got the more expensive diet?—Theoretically you should not.

5016. The human system wants a little filling up?—Yes.

5017. I think it is a very valuable comparison, but you could not keep a man working on that without a little change?—No. I only suggest this as an occasional meal.

5018. Lady EVERARD.—Would you not think that oatmeal mixed with the milk would be much better?—Yes.

5019. Miss McNEILL.—But you are not offering this as a meal for a man?—No.

5020. The CHAIRMAN.—For one meal a day it would not be a bad substitute.

5021. Mr. WILSON.—I would like to have your opinion as to the practicability of extending depots of the Strick-road type on a large scale to cities. Last year it was worked at a loss?—Yes.

5022. And all such institutions have been worked at a loss?—I believe so.

5023. They could not be run as a commercial proposition?—They have not been.

5024. Consequently, when we are dealing with the public milk supply as a whole, I take it we will have to leave out some of the expensive recommendations of the Strick-road type?—I suppose so. But I cannot see why it should not be made to pay on a large scale.

5025. The price which could be obtained for milk on a large scale in the cities would not warrant the expensive requirements of depots like the Strick-road Depot?—No.

5026. And consequently the Strick-road Depot becomes a dairy for the invalid or the child?—Yes.

5027. And is a different problem from the public milk supply?—Yes.

5028. Are you familiar with the knowledge which is now available in Denmark on that subject?—I have read something about it.

5029. The experience there is that when pasteurisation reaches a very large commercial scale osteomalacia creeps in, and that things are worse than they were?—I am not surprised to hear that, but I do not know very much about that subject.

5030. Milk is liable to pollution at various stages from the milking until it is used?—Yes.

5031. An estimate was made a couple of years ago regarding the various stages at which milk becomes polluted, from the farmer's house to the consumer's, and I suppose it would not surprise you that over 60 per cent. of the organisms found in the milk were due to contamination after the milk had left the farm?—I would not be surprised.

5032. With regard to the circular that you sent out to the women, I see that you make suggestions with regard to the babies' bottles, and so on?—Yes.

5033. It has been suggested that it is desirable to make the long tube flange?—Certainly. As a result of education even the very poor are beginning to

recognize that it is wrong. When I go abroad, the women hide the tube from me. We have to watch them carefully. I think the women are beginning to recognize now that the long tube is quite wrong.

5004. The CHAIRMAN.—I take it it was never intended when the Birmo-road Depot was started that it should be run on commercial lines?—I suppose not.

5005. It was merely an effort by philanthropic workers to deal with a crying evil, and to alleviate the consequences of an evil system?—Yes, I think that a milk depot is an ideal thing more or less. This Commission is concerned with the very poor, but among the better class there is also a fearful lot of ignorance about milk, and the amount of contamination in their case also is very great, and the amount of disease from milk channels must be enormous.

5006. One must not be discouraged by the fact that the effort to deal with this evil at the Birmo-road depot is involving a loss, because it was never intended that it should be made a sound commercial enterprise?—No.

5007. The question for the Commission is, if such a loss does arise in the solution of the difficulty of providing pure milk to the poor, from what source it should be borne?—Yes.

5008. Mr. O'BRIEN.—Some of these children whom you are looking after are Messrs. Guinness's employees?—All of them are.

5009. You are employed by Guinness's?—Yes.

5010. The employees are pretty well off there?—Yes, relatively.

5011. Do they object to pay the extra price for the milk at the Birmo-road Depot?—It is very little dearer than at home. They pay twopenny a quart. Even in the summer time I have known poor people paying twopenny a quart, and you can get the Birmo-road milk at about the same cost.

5012. Mr. WILSON.—Do the families, whose children benefited by the Birmo-road Depot milk, when the need for the milk as medicine has ceased, continue to buy good milk?—They are advised to do so, and I believe they do.

Miss McNEILL.—Quite a number of people have done so.

5013. Mr. WILSON.—Voluntarily?

Miss McNEILL.—Yes. Quite a number of them continue to buy the milk; it is only in the summer that the milk in the depot is dearer.

Witness.—Also, I might mention we are giving a good deal of milk at Guinness's to the employees. We are paying from £360 to £400 a year for milk. We get it from Dr. Swan's dairy at Delahed in connection with the Orthopaedic Hospital. That is a fine milk. There are splendid cattle, which are tested. The milk is refrigerated, and it keeps wonderfully well. It is very carefully sealed, and it is sent in bottles.

5014. What is the price?—Threepence halfpenny per quart in the all-round price.

5015. At all seasons?—Yes, and as I have said, it is supplied in bottles.

5016. I suppose you are familiar with the management of this farm on which the milk is raised, and know whether or not it can be raised commercially at that price?—It is done in a purely commercial way, and I take it they make a profit or they would not continue it.

5017. They do not supply the milk in a spirit of philanthropy?—No, as a purely commercial business.

5018. You can get a supply in a very satisfactory condition all the year round?—Yes.

5019. Miss McNEILL.—Is it delivered to each house?—No, to my Dispensary.

5020. Mr. WILSON.—Have you any knowledge as to how many cows are on that farm?—Thirty or forty, I think. I am not sure.

5021. Dr. MOOREHEAD.—Is the milk supplied in pint bottles?—Yes.

5022. The CHAIRMAN.—To the value of £360 or £400 a year?—Yes.

5023. Mr. O'BRIEN.—You say that you supply milk to other employees of Guinness's besides infants?—Yes.

5024. For what purpose?—As part of medical treatment.

5025. I think it is only among a certain group of the employees at Guinness's that there has been rather a high mortality from tuberculosis?—It is not higher than obtaining elsewhere.

5026. I understand that there had been a great deal of tuberculosis there, and that precautions were taken to eradicate the disease and prevent its spread?—Yes, one-third of our employees died from tuberculosis. That was over ten or twelve years ago, and the mortality has gone down to one-fourth since then.

5027. Is not that very high?—It is.

5028. These one hundred and twenty babies that were very sickly children, of which four or five died, were the children of patients who had tuberculosis?—Two came from distinctly tuberculous stock—the others were healthy.

5029. The employees themselves, are they kept isolated?—We have been carrying out sanatorium treatment and tuberculin treatment, and the Company has been exceedingly good about giving extra allowances and helping in every way. We have been taking a great deal of trouble to eradicate the disease.

5030. Generally speaking, you would say that most of the children are the children of parents who had tuberculosis?—No, only a small proportion.

5031. And amongst the employees generally of Guinness's, do you find that they use porridge?—Yes, to an increasing extent.

5032. And do you advocate separated milk as an adjunct?—Yes.

5033. And they can get it comparatively cheap?—Yes.

5034. Have you got any views as to the value of separated milk that has been pasteurized?—I have no experience of separated milk.

5035. Because one would say that the use of oatmeal porridge and separated milk would be a thing to be advocated, on account of being so cheap and such a good food for adults?—Yes.

5036. You have not gone into the question as to whether pasteurization injures the separated milk?—No.

5037. Most of the separated milk would be from the creamery districts, and during the journey to the city it might get contaminated, and probably it would be advisable to sterilize it?—Probably it would.

5038. Sir STEPHEN WOODHOUSE.—You consider mother's milk is the preferable milk for infants?—Yes.

5039. What percentage of mothers, speaking generally, nurse their children at Guinness's?—A very large percentage.

5040. Mr. O'BRIEN.—And for a considerable time, nine months?—Yes, and frequently for eighteen or twenty months.

5041. If you catch them you stop that?—I do not like their nursing after ten months, as a general rule.

5042. Is that a condition that varies in different countries—is it a question of climate?—I do not know.

5043. It is considered in this country, no doubt, distinctly inadvisable to go on nursing after nine or ten months?—Yes.

5044. Sir STEPHEN WOODHOUSE.—Do you think, generally, that over three-fourths of the mothers at Guinness's nurse their children?—Probably 75 per cent.

5045. I take it that you advocate pasteurized milk coming to the difficulty in getting pure new milk?—Yes, and another advantage of the depot is that the milk is bottled.

5046. What is the temperature Fahrenheit that they use?—I think it is 133 degrees.

5047. Have you seen diseases in children which you believe to have been caused by impure milk?—Yes, I have.

5048. I mean the probability in your own mind?—Yes.

5049. The summer diarrhoea that one sees so much of is a milk infection?—In a great majority of cases it is due to milk infection.

5050. Are glandular swellings in some cases due to milk infection?—Yes.

5051. Miss McNEILL.—The statement was made rather definitely by one of the former witnesses, that pasteurized milk had no injurious effect on children, that it produced rickets?—My experience is, and the experience of the French depots I mentioned, the opposite to that, have been quite the contrary.

5052. Have you any experience of rickets where a child was fed by the mother?—I have.

5083. Dr. McNEILL.—What was the condition of the health of the mother at the time?—Bad; on a general rule bad.

5084. Have you seen it produced in children of healthy mothers?—I cannot with accuracy say; generally the mother is in bad health.

5085. Miss McNEILL.—You alluded in your summary of evidence to the difficulty of obtaining good sound milk in the city?—Yes.

5086. Do you think that the working classes get milk that is sufficiently pure for infants' food?—I have seen milk frequently in their houses and it did not look very good. In many cases the mothers told me they found a great difficulty in getting good milk. I am only speaking from casual observation.

5087. I think you made some reference to the incidence of summer diarrhoea?—Babies that are nursed by their mothers do not get it to the same extent. In the children getting pasteurised milk the incidence was smaller than in the case of children getting ordinary milk.

5088. And the fatality of the cases?—Was less in the case of the children fed on pasteurised milk. We have not lost a single baby from summer diarrhoea.

Dr. OTTO BREDENICKER examined.

5091. The CHAIRMAN.—I take it, Dr. Bredénicker, you are resident in Birr, or in the neighbourhood?—In the town of Birr.

5092. Are you a medical practitioner in Birr?—No, I am not.

5093. But you are familiar with the scheme that has been introduced into that district by Lord Rosse for the supply of milk to the town?—Yes. In fact, I have been working a good deal on that scheme.

5094. You have been organising it?—Well, I have been assisted in doing so.

5095. Would you be good enough to give the Commission the history of that enterprise, how long it is in existence, and the circumstances under which it was called into existence?—The scheme was started in 1909. Up to that time Lord Rosse's dairy only supplied his house with milk. After the death of Lord Rosse this enterprise was started to supply the town of Birr with milk. The beginning was small. A new cow-house was built, according to the directions contained in a letter of the Department of Agriculture, to hold fifty cows, and then the milk supply began. We found that there was no difficulty in finding local customers. The delivery was by cart through the town, and there was also hand delivery, and there were no railway charges of any kind incurred. The milk is all sold locally. To give you an idea of the extent to which the trade has risen, I can give you the figures for 1911, which I have just finished. During that year the produce consisted of 82,110 gallons of milk. Of this, roughly, 29,000 gallons, or an average of 540 gallons a week, were sold locally.

5096. Is that exclusively in the town?—Yes, solely in the town; the milk is put into huge milk-cans, and the people come to the cart for it as it passes through the street, and get their supply and pay cash for it.

5097. Do they pay cash in every instance?—Yes. There are a certain number of customers resident in the town who get the milk delivered by messengers, and they pay monthly, but there is no longer credit ever given.

5098. And those, of course, would be the better class people?—Yes. Birr is rather a residential town, and these would be monthly customers.

5099. Are you familiar with the conditions that existed in Birr previous to the establishment of this milk depot?—Yes, I am living there over thirty-one years.

5100. Would you kindly give the Commission the history of the state of things previous to the establishment of this enterprise, and the causes that have led up to its establishment; why Lord Rosse felt called upon to embark on this enterprise?—Up to the time the dairy was started small dairies existed all over the town, but milk was not plentiful in it. Lord Rosse started the dairy owing to his interest in dairy farming. That was what made him start this enterprise.

amongst those one hundred and twenty bottles that were fed on pasteurised milk. In conclusion, I may mention with regard to the depot, that I would like to bear testimony from the educational point of view to the amount of good done in that large and increasing neighbourhood. The managers have been very kind in going to see the people, and advising the mothers with regard to many matters. Their work has made itself felt in the neighbourhood and has been of incalculable service.

Miss McNEILL.—In other places depots have been under the management of people who are not experienced in the care of infants, and I think they would have been more successful if, as in the case of the Birr depot, there were people able to advise the mothers.

5099. The CHAIRMAN.—Do you feel, Dr. Lawson, that the mothers are ready to conform with the advice you give them of adding orange juice to the pasteurised milk?—They seem to be very anxious to do what they are told. They always promise that they will give it, but I think a small minority of the children ever get it regularly.

5100. Orange juice would be an inexpensive addition?—Yes, oranges are cheap.

5101. It was started on commercial lines?—Oh, yes, certainly. The breed of cows was originally ordinary country cows.

5102. Irish breed cows?—Yes; and now we have a pure bred shorthorn bull, and gradually the breed of cattle is getting improved. Some one or two English cows have been bought. We have no Jersey cows in the herd, as the Jersey calves are not of great value.

5103. Do you keep milk records?—Yes. The quantity of milk is taken down every week, and each cow's morning's and evening's milk. It is all totted up weekly. I get the sheets and I abstract the averages. I have the original book here.

5104. We should be much interested in the figures if you gave them to us?—Last year the figures did not go quite so high as the year before.

5105. We can easily understand the reason for that, owing to the dry summer. We would be glad if you gave us figures, say, for three years, because we recognise that last year was an exceptional year?—In 1909 we had only a small number of cows. In 1909 we had the whole cowshed full. Cow No. 20 gave that year 915.25 gallons. The number of milking weeks was forty-one, consequently the average number of gallons per week was 22.32. Here is another cow, No. 8. She gave 622.88 gallons for forty-seven milking weeks; so that the weekly average was not quite so high—19½ gallons. Here is a third cow, No. 7, that produced 506 gallons for forty-two milking weeks, making an average of 22 gallons a week.

5106. Mr. O'BRIEN.—What is the average of the herd?—There were 40 cows with over twenty milking weeks each; the average number of milking weeks was forty-one and a half; the average of gallons was 618.77, so that the average number of gallons per week was 14.78. The total produced in 1910 was 50,067 gallons; last year it was 52,110. In 1911 the year got very dry and there was a difficulty in feeding.

5107. Can you tell us what this individual cow produced last year?—No. 7?—No. 7 in 1910 produced 506 gallons and in 1911 729 gallons.

5108. That cow milked for forty-two weeks?—Yes, in 1909, and forty-one weeks last year.

5109. Mr. CAMPBELL.—When does your year begin?—On the 1st of January.

5110. Mr. O'BRIEN.—Have you got the average of No. 8?—In 1910 she produced 622.88 gallons for forty-one milking weeks. It is interesting to note that the weekly average of this cow, No. 20, was, in 1909, 22.32, and in 1911, 22.36.

5111. What was the total for thirty-four weeks of No. 20 in 1911?—769.13. Other cows increased from 1910 to 1911. But different feed may have affected them, or it may have happened that a greater number of milking weeks fell into that year.

5112. The CHAIRMAN.—Would you tell us how the cows are fed?—I am not enough of a farmer to give you that information. I cannot exactly tell you how they were fed. Lord Rosse has conducted a number of experiments as to the feeding of cows. He feeds

them on vetches, clover and peas. This year they are to get peas and beans, and also *les d'hiver*. It is richer than all-ens.

5113. Mr. CAMPBELL.—Do you find it affects the flavour of the milk?—Not if judiciously given.

5114. Mr. O'BRIEN.—It is crushed?—Yes.

5115. Lady EVERARD.—*Les d'hiver* is what is called *harrowed* in this country?—Yes. It is a special variety grown for seed, not for flax.

5116. Dr. BORRADAKE.—Is it soaked?—It is steeped; but I cannot give you sufficient information about the actual feeding, because we have not quite settled down to a fixed method yet.

5117. The CHAIRMAN.—It is quite obvious that the cows are fed on expensive food?—They are fed carefully and systematically.

5118. Mr. WILSON.—Before you pass from the milk records would you give us some of the low figures?—For 1911, cow No. 18 gave in forty-nine milking weeks only 439 gallons, at 24 gallons per week. Here is a cow, No. 45, of forty-eight milking weeks which only gave 12.6 gallons per week on an average.

5119. Mr. O'BRIEN.—I do not think you told us what the average yield was for 1911?—There were forty-nine cows, with over twenty milking weeks, and the average number of milking weeks was 39.68. The average number of gallons was 638.84, and the average number of gallons per week 15.46. The average number of gallons per week was higher, but the total was low. The number of milking weeks fell back last year by two. The two leading principles in the dairy are—to sell the best possible quality of milk, and exactly the same quality to every single purchaser. These are the two leading principles, and in order to bring about number one, selling the best quality of milk, the cows were all tested, and are still tested, for tuberculosis. Any cows that react are weeded out and replaced by other cows, which necessitates, of course, a considerable herd at Birr Castle. With cows and heifers there would be considerably over two hundred animals.

5120. The CHAIRMAN.—Can you tell us roughly what proportion react?—Not very many. We have one sheathen bull, and it is only used for the Birr Castle dairy—for our own cows. We are of opinion that disease as frequently introduced into a herd if this is not observed. The number of reactors has not been great. Five came out of fifty tested, and two of them were English cows, which had been bought in 1909 as a trial. They have died since.

5121. They actually died from the disease?—Actually died; but I hear it is not unusual for these English cows to be affected.

5122. Mr. O'BRIEN.—These English cows were bought for their milking quality and for breeding?—For their milking qualities and to breed from, so as to improve the milking strain. We have some others in the dairy sound.

5123. From what source do you get your cows? Do you buy them locally?—Largely locally; but we have a great many of our own calves.

5124. You breed a number of the heifers?—Yes.

5125. By whom are the cows bought; are they bought by the steward or by an expert?—By the steward.

5126. He has not more than an ordinary training?—Yes, he is a very experienced man certainly.

5127. The CHAIRMAN.—Has he got any experience of cow-keeping or dairying in other countries than this?—I should say that he had got other experience. He is a Scotchman.

5128. He has been so very successful I wished to bring out his nationality?—He had been in Ireland before he came to Birr; he is an experienced man.

5129. And the cattle are all bought locally—the steward goes to the fairs and buys a cow that he thinks will be a profitable dairy cow, and one that will conform to the other conditions attached to the production of milk?—Yes. I cannot give you much information on that.

5130. He is not restricted as to the price of the cattle purchased?—No.

5131. You have not told us at what price you sell the milk?—The price is 3d. a quart all the year round.

5132. Mr. WILSON.—In bottles?—No, delivered out of the churn.

5133. Lady EVERARD.—And it is retailed about the town?—Yes.

5134. People have not to come to the dairy for it?—No, it is carted round the town.

5135. The CHAIRMAN.—You have no shop in the town?—No.

5136. All the milk is delivered from the cart?—Yes.

5137. And some private customers are supplied by hand delivery?—Yes.

5138. The farmyard is almost on the confines of the town?—Yes.

5139. What number of milkers do you usually employ from the herd? Have you a minimum standard, and say that go below that standard are put out?—We go by the richness of the milk really.

5140. Not by the quantity?—No, but by the quality of the milk. We observe absolute cleanliness in regard to the milk. We filter all the milk through one of those sterilised cotton-wool filters. We have laid on clean water to the cow-house. As a matter of fact, it is the water of St. Brendan's Well, and a turbine pumps the water, and pipes are laid on to the cowshed, so we have the purest and best water. Paraffin oil is most objectionable, and ought to be avoided if possible; so we have laid on electric light to the dairy, and we find this an immense advantage. We also use the same power for milking the cows and the pumps—a small motor. This is very convenient. Then the milk is chilled immediately after milking by Lawrence's refrigerator, and we find by that means that the keeping qualities of the milk are improved; and it has another advantage, the cream is not so much inclined to rise. This does not make the refrigerating popular amongst the customers as a rule. They think when the cream does not rise at once that the milk is poor. If the milk is chilled it keeps up a good mixture.

5141. Mr. WILSON.—What temperature does it go down to?—It gets down at present to a temperature of about 41 or 42 degrees, occasionally lower, 36 and 37, and in the summer to 44 or 45 degrees. We have an unlimited supply of cold water.

5142. You do not use the milk?—No. The milk is tested weekly for butter fat. I do that personally. Originally I used the sulphuric acid process, but I gave it up as I found it most inconvenient. I now use Dr. Gerber's process. It is practically identical with the sulphuric acid process, except that the sulphuric acid employed to destroy the casein or cheesy matter in the milk is replaced by an alkali called "sal," by Dr. Gerber. As the alkali or "sal" is not so corrosive as sulphuric acid, the process is safer, and much more agreeable to practice.

5143. Mr. O'BRIEN.—Is it continuous?—Yes. The milk which goes to the town and that of seven cows is tested every week, and as there are fifty or sixty cows, each cow will be tested nine or ten times in the year.

5144. Mr. CAMPBELL.—Is this a test of the average of the milk when it is all put together?—Yes.

5145. So that not only do you test the composite sample, but also the samples of the individual cows?—Yes. Seven cows are tested every week.

5146. Do you take the samples from the morning's and evening's milk?—I take, as a rule, only the morning's milk, because if that is up to the standard the evening's milk is bound to be better, by two or three decimals.

5147. When do you milk in the evenings?—At 3.30.

5148. Mr. O'BRIEN.—What time do you begin milking in the morning?—6 o'clock.

5149. Mr. CAMPBELL.—Can you account for the fact that the milk occasionally falls below the standard for fat, three per cent.?—No. Here is the record of one very bad cow, No. 40, where the perfectly pure milk did fall below the legal standard of three per cent. A cow which is permanently bad is weeded out.

5150. Mr. O'BRIEN.—Though she may be a good milker?—Yes.

5151. The CHAIRMAN.—Previous to the luncheon interval you were dealing with the records and the means that were employed at Birr Castle to keep up the supply of milk?—Yes.

5152. I take it you wish to continue your evidence in regard to that?—Yes. If any cow has to be weeded out on account of the inferior quality of the milk she is yielding she has to be replaced. This is done from Lord Rosse's farm, which is some distance from the dairy, and another cow is put into the dairy herd. We have again to find out whether the milk is really good, because I do not test the milk of the farm cows. You will find in this book that when the cows first come from the farm into the dairy-shed the percentage of butter fat in their milk is low.

5153. They are not fed in the same way?—No. Here is one cow, No. 81, in whose case the butter fat increased by one per cent., from 2.2 to 3.2.

5154. Mr. CAMPBELL.—Now, you think, to the feeding?—I think so.

5155. You have made yourself acquainted with the investigations as to the effect of feeding on the composition of milk?—Yes.

5156. And you know that it has been asserted that the feeding does not materially affect it?—Yes. I am strongly of opinion that it is a constitutional question with the cow—the richness of the milk. But the cow comes from a farm, where she has only grass, to a dairy, where she is better housed and fed, and her general condition improves, and the butter fat rises to a certain standard, and is inclined to remain at that standard more or less, independent of any variation of feeding, but you can influence the quantity of milk by the food. You see that over and over again. The cow, No. 83, which is first put into the dairy stock is low in butter fat, and gradually it increases from 2.0 to 3.3. If she falls off, or permanently remains low, she is taken out of the herd. No. 35 is a cow that is poor in butter fat, but she has a considerable yield of milk, yet she will have to be drafted from the dairy-herd. She gave 860 gallons in 1911, but the average butter fat in that year was only 2.9. You know it is a popular belief that a cow that gives a great deal of milk gives poor milk, and that a cow that gives little milk gives rich milk. I have not found that confirmed.

5157. Your observation and the records do not confirm this?—No. Cow No. 46, in 1910, gave 492 gallons in that year of thirty-nine milking weeks, and the butter fat percentage was 3.95. That is very high—practically four per cent. On the whole, though it is a popular belief that the cow that gives a large quantity of milk gives poor milk, and that the cow that gives a small quantity gives rich milk, I do not think it is well grounded. A case occurs, no doubt, like the one just given, but I should not take it as a general rule.

5158. The CHAIRMAN.—It would appear to be your experience that it is quite possible for a cow to yield milk below the legal standard, and in that case the owner is open to prosecution on a charge of adulteration?—The Act says unless he can prove that the milk has not been tampered with. The Act makes that perfectly clear, that if the owner can prove that it is pure milk he is not liable to a conviction.

5159. That is sometimes a matter of great difficulty to prove. If a man had only that particular cow, would he not find the utmost difficulty in proving that what he sold was what he got from that cow?—Yes, he would find the greatest difficulty.

5160. I think that is rather a blot on the Act, because it is a hardship on the cowkeeper to have his character injured because the cow does not give milk up to the legal standard through no fault of the owner?—It is hard to say how that can be avoided. The standard of three per cent. is lowish.

5161. Mr. CAMPBELL.—It is a fair standard?—Yes.

5162. The CHAIRMAN.—It must be recognized that cows may produce milk below that standard?—Yes. I can prove that myself by figures. I have given you some instances.

5163. Have you any experience to show whether or not the quality of the milk of a cow may not vary from one milking to another?—Not appreciably. It varies at times, but only a little; it fluctuates constantly a little bit.

5164. You would not be hopeful by any method known to you that you could improve the quality of a cow's milk to keep her in the dairy?—Not if the cow constantly gives poor milk.

5165. With regard to that particular cow you mentioned that gave the poor quality of milk, was she a dairy or a town beast?—I could not tell you that. I cannot recall.

5166. Because it would be interesting to know whether it was constitutional changes that took place in the assimilation of the food that produced flesh rather than butter fat?—Here is one case which is interesting. The milk of one cow, No. 70, had got abnormally rich and thickish, and I could not understand it. I tested it and ordered the man to give me another sample of milk the following week, thinking that perhaps I had made a mistake in my first test. Then, again, I found the milk very rich and thickish, and then the explanation came. The cow lost her calf prematurely the day after the milk test. It was found that she had got hurt, probably by stepping and knocking her top against the doorpost, while in calf, and that the milk had automatically turned into what are called "beatings," as the cow's organism becomes

aware of the approaching premature birth. That is what happened. The cow recovered, but the calf did not live.

5167. Have you had trouble from abortion?—No. During the dry weather it happened once or twice.

5168. But it was not an epidemic?—No; these cases could be always explained otherwise easily.

5169. Has the establishment of your milk supply in the town of Birr killed the milk trade generally, as it had existed before?—No; by no means. At first the enterprise was not popular in the town, because all these small dairies thought that they would be extinguished. Now a most interesting thing has happened—the supply of good milk has created an enormous demand for such milk. You see the milk cart belated when passing through the town by people of the poorest class. All the people get the same quality of milk. I notice that the small local dairies are on the increase rather than on the decrease. The cows have increased, and the whole milking business is increasing enormously in Birr. The other dairies have adopted our system of changing the same price all the year round. Originally the milk was sold at 2d. a quart in summer and 3d. in winter, now it is 2½d. all the year round, which is much more satisfactory. The average milk supply of the small dairies is very good. It is delivered everywhere, and the increase does not affect our output, so I was puzzled, and I made some inquiries. I have found that there has been an enormous decrease in the sale of condensed milk; that formerly condensed milk was bought in the town of Birr in very large quantities, and now I have reason to believe that in the town the sale of condensed milk has practically ceased. The condensed milk is bought by country housewives who cannot get home milk, and sometimes by farmers when their own cows dry so a substitute for new milk; but in Birr the sale of condensed milk has gone down very much. It is almost extinguished.

5170. Which proves conclusively that the people do not consider condensed milk a proper substitute?—Yes. And that there must have been a considerable shortage in the milk supply.

5171. How the objection you have given to the other cow-keepers proved effective in improving their methods?—I have no opportunity of investigating matters of that kind, and it would not be easy for me to do so.

5172. Is there an inspector appointed by the local authority to look after the dairies in your district?—Yes, there are local inspectors, and I am of opinion that their inspection is of a distinctly perfunctory character. I think the inspector ought to be an expert in dairy matters, and very frequently he is not anything of the sort.

5173. You would be in favour of the appointment of professional men as inspectors?—Yes. If I might make a suggestion it is this—I have often thought that a surprise visit to the dairies on the part of an expert from the Department would be a most admirable thing.

5174. Was there any hostility manifested by the people engaged in the milk trade locally when Lord Rosse embarked on this enterprise?—No.

5175. There was no outward hostility?—No, they were not hostile. On the contrary, the feeling was one of general delight that good milk was brought within the reach of all.

5176. And the people showed their appreciation of this?—Yes.

5177. And the increased consumption shows what an advantage it must be to the health of the district?—Undoubtedly.

5178. Have any lectures been delivered lectures in your district in connection with dairying?—In the country they do. I think that dairy lectures ought to be delivered in the town as well as in the country. There is rather a tendency that the Department's lecturers should deliver lectures only in the country; but the dairy business concerns the town as well, and I think it would be a good thing if there were dairy lectures in the town.

5179. Mr. O'BRIEN.—What do you mean by dairy lectures?—Lectures on the keeping of cows and cowsheds, and the necessity for cleanliness.

5180. And dealing with the benefit of milk?—That would be a good thing.

5181. Lady EVANS.—You spoke of dairy lecturers?—Yes.

5282. I take it that lectures can only be given in urban districts if the urban districts are contributory to the County agricultural scheme. Is that an urban centre?—Yes.

5283. You cannot have urban lectures unless the urban authority pays a rate to the County Council?—No, of course, pays a considerable rate towards the technical school scheme. I have been for a considerable time Hon. Secretary to the technical school at Birr.

5284. But the dairy lectures would only be given in connection with the agricultural scheme?—Yes, but at the same time we have had horticultural lectures at Birr, and there would be a good course even for country people for dairy lectures. I know that under the rules of the Department the urban centres would be excluded from dairy lectures; but I think it is a great mistake. I think it would be a very good thing if such lectures were delivered in urban centres like Birr. Besides, a great many of the people living outside the urban boundary would find it convenient to attend the town.

5285. You would propose a course of dairy instruction?—No.

5286. Simply lectures?—Yes.

5287. The CHAIRMAN.—Dealing with the subject generally in all its bearings, from the purchase of the cow to the selling of the milk?—Yes, and with the importance of certain points being observed. I think it would be very good, but the lecturer should be an expert who knows all about the subject.

5288. Lady EVELAND.—Do you consider that your veterinary inspectors do their work thoroughly?—Yes, certainly; but with regard to the dairy inspectors, I have known cases of their inspection being distinctly perfunctory. I am of opinion that such an inspector should be more of an expert than be generally so.

5289. It has been given to us in evidence by previous witnesses, that they consider that the experts ought to be whole-time servants, and not appointed by the local authority?—Yes.

5290. So that he would be perfectly independent?—I think that would be a distinct advantage.

5291. Dr. MCKENZIE.—Have you any idea if Lord Rose's enterprise as a paying concern?—The financial part of the matter does not concern me at all.

5292. But you would know in a general way whether it was paying or not?—I should say it is a self-supporting concern.

5293. Producing some profit?—I should consider that possible.

5294. Have you any difficulty with regard to labour?—No.

5295. You can get it abundantly?—Yes.

5296. And good labour?—Yes.

5297. Regular?—Yes, regular and reliable.

5298. You have no trouble about that?—No.

5299. You said you had from four to five reaters to the tuberculin test?—Yes.

5300. What do you do with these reaters?—They are sent back to the farm, and in that way pass out of my ken.

5301. You do not know what ultimately becomes of them?—No.

5302. They are not destroyed at all?—No.

5303. They are put out of action so far as the dairy is concerned?—Yes.

5304. And you do not know what becomes of them?—No. A couple of them died.

5305. I take it you have about four or five reaters every year?—No, not so many; recently we have had none.

5306. The CHAIRMAN.—Do you use a milking machine?—No, it is all hand-milking.

5307. You have not any trouble with the Sunday work?—No.

5308. And your deliveries are made on Sundays as on week-days?—Yes.

5309. Dr. MCKENZIE.—How many men would you have to manage the dairy herd?—I should say four or five men and a boy, I think.

5310. They are well paid, I presume?—I cannot give you any information about that.

5311. Mr. CAMPBELL.—If you sacrifice the reaters and the cow that goes down a little below three per cent., and only charge 2½d. per quart for the milk, I would think that you would find it difficult to make the enterprise a paying concern, because the replacing of these two classes of animals must be a heavy drain?

—It is not very heavy. The disease was practically only shown by these English cows that were introduced, and we have had none since.

5312. Is it a veterinary surgeon who tests your cattle?—Yes. All the cows which give bad milk are fettered and sold, and sometimes, if not too bad, they are used for feeding calves. In that way these cows are utilized and come in useful.

5313. You are trying to grade up the quality of your milk?—Yes.

5314. And you do not propose to charge more than 2½d. a quart for it after you have graded it up?—I do not think so.

5315. Milk is valuable mainly for its fat?—Yes.

5316. And if you can raise that from three to four per cent., that is 20 per cent. increase, you do not propose to make any change in the price?—I do not think that it could be done in our district.

5317. But the milk is worth it if you increase the percentage of fat?—Yes, but the general population would not look at it in the same way at Birr.

5318. Do you not think that is one great drawback to dairying, that the farmer who has a small percentage of fat gets the same price as the man who has a higher percentage in his milk?—Yes.

5319. Because if you made butter you would get the benefit of the difference?—Yes, you would increase the price at once.

5320. And supposing there was a creamery in your neighbourhood, it would be far more profitable to send you milk to the creamery than sell it?—Yes.

5321. Therefore, this practice of supplying milk at a universal price is not conducive to supplying the country with better milk cows when you do not get the benefit. You have never thought of supplying two grades of milk?—No, I consider that a very bad system.

5322. It is a bad system in one sense, but not in another?—From the seller's standpoint it is a very satisfactory one, no doubt; but I think, for the sake of the reputation of the dairy, it would be a very bad thing to sell two grades of milk.

5323. In other countries it is graded?—It is, but to put it plainly, the people would have to be educated up to that. They would not understand it.

5324. What inducement is there for a farmer who is making his living by dairying to improve the quality of his milk?—He gets more customers and he finds a ready market for his milk, and, of course, it would not be sold at 2½d. a quart if there was not a profit.

5325. Supposing this enterprise fell through, do you think milk could be produced in the surrounding districts by the farmers?—No.

5326. What do they do with the milk in the surrounding district?—Make it into butter and bring it into Birr.

5327. They will not get more than 5d. a gallon for their milk?—I do not think they will.

5328. You would have no difficulty if you ran short in buying milk?—No. We do not do that as a matter of fact.

5329. It has been suggested that in districts where there are no persons, such as Lord Rose, to take this matter up, the Urban Council might do what Lord Rose is doing?—Well, of course, I can only give expression to my own personal opinion; but to take this whole milk business out of the hands of the individual, and do away with open competition and private enterprise, would be a distinct mistake. I do not believe in that. I think you will only make the milk business really successful if you leave competition and private enterprise open, and let the man who sells the milk have a definite personal interest in it as a proprietor. Individual attention has so much to do with dairying, and you get the best results if the man's own pocket is very materially interested in it.

5330. Suppose you ceased producing milk upon your farm, but you still wished to supply Birr with milk, do you think it would be possible to get it from the surrounding farmers and open a depot?—I do not think so.

5331. Were you in this morning when we had evidence relating to the milk depot at Naas?—No.

5332. You are aware that in several small towns the Women's National Health Association have started three depots. I understand the milk is purchased from the farmers and brought into the depot and sold to the people. You would prefer that to the system of the Urban Council taking a farm and working it?—Yes.

5235. Do you think from your experience that that would be a satisfactory system—collecting the milk and selling it at a depot?—In places where you could not get private dealers it would be the next best system, I suppose.

5236. You do not see any great objection to it?—I do not care about mixing the milk from different farms, it is very liable to be polluted and contaminated, and is not as sanitary as it ought to be. If the whole dairy milk production is in the hands of one individual it is very much easier; in fact, it is only then possible to have it of the best possible quality and in a sanitary condition.

5237. You mentioned that you had erected a byre on the plans supplied by the Department?—Yes.

5238. Do you find that satisfactory?—Yes, on the whole, but I do not quite like that the cows stand with their backs to the centre of the byre, and you have to step between to fill the manger. You would never find that in Germany. I am a Westphalian, and we would always have provision to feed the cows from the head; it is very convenient.

5239. But it is more expensive?—It is, no doubt, a little more expensive, but it is very convenient.

5240. In Ireland you must consider the question of expense?—Yes.

5241. Dr. MOOREHEAD.—Would it not be much more healthy to have the passage at the top?—I think it would be preferable, and certainly more convenient, but I admit it would mean more floor space and more expense.

5242. Mr. CAMPBELL.—As a matter of fact, the people who have practised dairying very extensively have abandoned that other system, and many veterinarians and medical men have objected to cows standing head to head?—In my country (Westphalia)

a broad passage would run up the centre of the row, horse, with feeding-troughs and racks on each side. The cows would stand, consequently, with their heads towards the centre of the house, and a passage would be provided behind the cows along the side walls, with doors leading outside for cleaning and littering. The hay is kept in the loft above, with a trap-door over the central passage, through which it is thrown to be fed into the racks.

5243. The CHAIRMAN.—Do you liberate your cows in the day during winter?—Yes.

5244. Every day?—Yes.

5245. Regardless of weather conditions?—Unless it is too bad.

5246. Mr. CAMPBELL.—Do you know what cubic space you have got in your byre?—No.

5247. Do you know whether the veterinary inspector looks into the question of cubic space?—We were guided from the Department's designs, so if our cubic space is not sufficient they are responsible.

5248. The local inspector has paid no attention to that point?—I cannot say, I should hardly say that a local dairy inspector would, but the veterinary surgeon who came privately to look our cows might have looked into it. It did not strike me that there was not enough cubic space, as the place is lofty. Yet it is hard to keep the byre sufficiently cool at times. The ventilation wants to be very good when you have fifty cows housed.

5249. In this plan of the Department they say, I think, in regard to the ventilation?—I am inclined to think so.

5250. They want better ventilation for this country, where the climate is mild?—Yes, I think so.

The CHAIRMAN.—Thank you very much, Dr. Beechler, for the very explicit and interesting evidence you have given the Commission.

Mr. JOSEPH BEECHER, D.V., examined

5251. THE CHAIRMAN.—You are a resident in the City of Dublin?—Yes, Mr. CHAIRMAN.

5252. Are you interested personally in the milk trade?—At present I am.

5253. Are you producing or purveying milk?—We are doing both. I may say that we have a hotel and have our own farm. We have a farm at Roebuck and raise milk.

5254. Do you sell milk retail, or do you only use it at your own hotel?—It is also sold to customers and delivered to them by cart.

5255. You produce more milk than the needs of the hotel require?—Yes.

5256. Your farm is at Roebuck?—Yes.

5257. What districts do you sell in?—In the City, beginning in Rathleigh and right up to the North Circular road.

5258. Have you been long engaged in that trade?—We are engaged in the trade for twelve years. I used to farm, I should have said, in the Co. Fermanagh before I came to Dublin, and lived solely by farming.

5259. Have you a large farm at Roebuck?—Only twenty-two acres.

5260. How many cows do you keep on it?—They vary in number according to the state of their milking, sometimes seven or eight and sometimes a dozen.

5261. You deliver your milk in the ordinary retail fashion to private customers in the City of Dublin and supply your hotel as well?—Yes.

5262. Where do you purchase your cows?—In the Dublin market.

5263. The reason I put the question was because I was curious to know whether you went to fairs in the North of Ireland or not?—I did buy some there after I came to Dublin when I wanted three or four cows, but the expense would be too great in the purchase of one animal; the railway charges would be heavy for one animal brought in the North of Ireland.

5264. You buy, I take it, a good quality of cross-bred cow in the Dublin market?—Yes.

5265. Do you keep any milk records?—No. We simply test the milk, but nothing further.

5266. You simply test it for quality?—Yes.

5267. But not for the purpose of ascertaining the yield per cow?—No, nothing more than for the butter fat.

5268. Do you find any difficulty with labour in the carrying on of your trade in Dublin?—Considerable difficulty.

5269. Is it inefficient or is it unsettled?—Unsettled and unreliable and inefficient. You have to exercise constant supervision yourself, and often to do the work.

5270. Without the supervision you would have your trade carried on in a very fitful fashion?—Yes, and it would be very unsafe not to have the supervision.

5271. Do you think that the people who have followed this occupation are cleanly in their habits, and take every care to keep the milk untainted?—We have a bit of difficulty about that. That is one of the things that we complain most of, the untidy habits and the way of working.

5272. With regard to the question of supervision, is that efficiently carried out in your judgment?—I think so.

5273. Are you in Rathdown district?—Yes.

5274. And Mr. Mason is the chief officer?—Some gentlemen visit us there. I don't know his name.

5275. Have you had much trouble from tuberculous cows?—No, we had only one cow that we knew was tuberculous.

5276. What became of her?—We sold her to the "knacker."

5277. Was she so bad as that?—Yes, and I had a conscientious objection to do anything else with her. I did not think it would be fair to put her into the market as sound beef.

5278. That is the only experience you have had in your period of trading of tuberculous animals?—Yes, we had only the one one that we knew of.

5279. Has your trade in milk been increasing or diminishing?—I could increase our trade, but it does not suit us.

5280. Your experience is that the demand for the milk is certainly not decreasing?—No, not by any means.

5281. What prices do you charge?—3d. in summer and 4d. in winter.

5282. You have no shop in Dublin at which you sell the milk?—No, it is delivered from the cart.

5283. Do you keep the same number of cows in the winter as in the summer?—Yes.

5282. Do you find that the demand varies from day to day? Are you ever troubled by having a surplus of milk left on your hands?—Yes, and sometimes we do not have enough.

5283. That is one of the disadvantages of the trade?—Yes.

5284. Do you think?—No. We wear the milk, and we do our own baking very largely, and the milk tins are handy for that when we have any over.

5285. For one who had not the variety of occupation that you have the surplus would be a serious loss?—Yes. We can utilize it.

5286. Do you think that the cows that you now get at the Dublin market are as good dairy cows as those you were familiar with when you were residing in Fermanagh?—Yes. We are not shunning now as we did then, and we have no opportunity of judging of their better or quality.

5287. Do you think that the yield of the milk is as good?—I think it is. Cows vary very much, you know, in the quality and quantity of their milk.

5288. We have had abundant evidence of that. Do you believe that it is essential to supply cows with the best quality of food?—Yes, and it has everything to do with the quality of the milk. You will get quite a difference between the cows themselves as to their producing qualities.

5289. Do you use home products for feeding your cows?—Yes, we grow our own roots.

5290. Do you feed with roots and barley?—Barley and Ribby's cake.

5291. Do you ever use oats?—Yes, crushed oats.

5292. Do you think it is an economical food to use?—If I were farming where it is more plentiful I would use it more largely than I do, because we do not raise it. We cannot raise it. We are only growing three or four acres of roots.

5293. You graze the cows on your own land at Roebuck?—Yes, and make a little straw.

5294. Are the cows ever inspected when on grass?—I have never known them to be.

5295. Do you think that the provisions of the Dairies' and Milkshops' Order are exacting on cow-keepers?—I do not think that they are too exacting.

5296. You have no reason to complain of them?—No, we have no reason to complain.

5297. And you do not think that the conditions imposed by the regulations increase appreciably the expense in producing milk?—The Order requires the proprietor himself to be a good deal more careful than he otherwise might be, but I don't think it costs much more.

5298. You think it is a question of trouble rather than financial loss?—Yes.

5299. Do you ever have your cows subjected to the tuberculin test?—No, we never have it done.

5300. You have no experience of it?—No. We sold a few cows lately, and they had to be subjected to the test.

5301. Were they sold subject to passing the test?—Yes.

5302. For what purpose were they sold? Was it as dairy cows?—Yes.

5303. Mr. CAMPBELL.—Out of the country?—No, at Dublin.

5304. The CHAIRMAN.—Did you get an enhanced price by reason of their passing the test?—No. I got no more than a dealer would pay for the same animal without the test.

5305. Are the visits of the inspector frequent to your place?—They are fairly frequent, every three months, perhaps oftener.

5306. Did they ever direct your attention to any conditions that they thought unsatisfactory and ask you to make alterations?—No, except once, when they complained of the manure-heap being too near the byre. It was in the springtime that the manure-heap was there, and the weather was wet, and we could not get the potatoes in. We told them we would remove it if they gave us fine weather. It was, of course, removed afterwards.

5307. Mr. CAMPBELL.—How far is the manure-heap from the byre?—It is within fifteen yards.

5308. Is it within the city?—No, it is at Roebuck.

5309. The CHAIRMAN.—You can scarcely speak from experience, I take it, as to the scarcity of milk among

the brancher classes in the city. Have you any knowledge of the circumstances under which they live?—Not so much as I had in the country. I had considerable experience in the country.

5310. What part of Fermanagh did you live in?—Brookborough, near Enniskillen.

5311. And had the labouring classes there found a difficulty in getting a continuous milk supply?—There was not much difficulty then. Some people would not spare a quart of milk to anyone, but others would. The labourer working for a farmer would get a supply of milk as part of his wages.

5312. That would be a most consistent employment?—Yes.

5313. But the casual labourer had not the same privilege?—He might have a little bit of land of his own and a cow or two.

5314. It is a country of small farmers rather than of labourers?—Yes; but there are a great many labourers there, of course.

5315. Living in Union cottages?—The Union cottages had only begun to be built at the time after I left Fermanagh fifteen years ago, and the creamery system began to be introduced.

5316. Lady EVANES.—You say you have had some of your cows tested?—Yes.

5317. What does it cost you to have them tested?—I do not know, I am sure. I heard that it would be 10s. for each cow.

5318. The CHAIRMAN.—You said that you had sold some of them subject to the test?—Yes, but it was the purchaser paid. It is for his protection that the test is applied, and the bargain was that if the cow tested she would not be sold.

5319. Dr. MOSEMAN.—If the animal does not pass who would pay the fee?—The purchaser, because it was for his protection that the test was made.

5320. Mr. CAMPBELL.—You do not test your own cows?—No.

5321. Are you prepared to sell more cows subject to the test?—Well, it is only in two or three cases that I was asked to do so.

5322. Do you breed?—No.

5323. So that it is purchased cows that you re-sell?—We do not re-sell very many cattle. When we have surplus milk, or too many acres due to milve at the same time, then we have to part with one or two.

5324. You are not prepared to carry on a trade of allowing persons wanting cows going into your place and testing them and buying them?—We are not doing a trade of that kind.

5325. Dr. MOSEMAN.—Do you find it necessary to have a cow tested when you are buying it?—It never struck me to have them tested. I never thought of getting one of them tested.

5326. Lady EVANES.—I see that you say in your summary of evidence that you consider that one of the reasons for the shortage of the milk supply is that the farmer is not inclined to give the labourer milk if he does not live in his cottage?—That is one of the reasons for the scarcity, to my mind, for the labourer is living on the farm and not working for the farmer. They are independent of each other, and between the trouble caused by the goats and other matters, there might be some friction, and one says "I will not serve you," and the other says "You are doing me harm, and if you want a drop of milk I will not let you have it."

5327. Dr. MOSEMAN.—Do you find it profitable keeping cows and selling milk at threepence and fourpence a quart?—Yes; in addition, we have our own house to supply.

5328. How many cows do you keep?—From eight to ten or twelve.

5329. Mr. CAMPBELL.—Who was it complained about your manure-heap?—One of the inspectors.

5330. A veterinary surgeon?—I do not know whether he was a veterinary surgeon or not.

5331. But he asked you to remove it?—Yes.

5332. And you did remove it?—Yes, I told him if he would give me good weather I would remove it in a few days.

5333. How long had it been accumulating?—During the winter months.

5334. You could not farm without the manure?—No.

5335. The manure is the mother of the milk?—Yes. If you have plenty of space and ventilation in the cow-house, and the cows are kept clean, it is, I think, more important than removing the manure.

5346. You never heard of anyone dying because of working on a machine here?—No, and I am told that the men working in the drains in the city live the longest.

5347. The CHAIRMAN.—It was stated before us that there was a practice of carrying hotel refuse in the same gig in which the milk was brought in. Do you know if that custom prevails? It has been stated that the refuse was brought back in the milk vessels?—Our things go out in the same van, such as potato peelings and stuff of that sort, but there are no shops and they are not, of course, put into the same vessels as is used for the milk, but into a box kept for the purpose.

5348. I was curious to know whether the statement was well founded. You have heard it said that the other custom prevails?—Oh, yes, and heard it very frequently.

5349. Sir STEWART WOODHOUSE.—Have you a bye on this farm in Roskell?—Yes.

5350. Does your man live there?—It is my son that is living on the spot, and the men are hired and are living in the house. We had to keep them in the house or they would go away and get drunk.

5351. The CHAIRMAN.—Would you think it possible to carry on the trade if you had not a member of your own family at the farm?—I would not keep on the trade for twenty-four hours longer than I could dispose of it.

5352. You believe that personal supervision is the first essential to the efficient and economic management of dairy business?—Absolutely.

5353. Is there any other point to which you wish to draw the attention of the Commission than those to which you have referred?—I think I have gone over the whole thing except the question of the urban dairy.

5354. We would be glad to know what your opinion on that question is?—Well, I think that possibly a depot might be useful in some districts, especially as the labourers have migrated so much to the villages.

5355. Would you approve of the idea of a dairy being run by a local authority to supply milk to the depot?—Certainly not.

5356. As a means of distribution you would use the depot?—Yes.

5357. You think that it would be best to leave the production of the milk in the hands of the local farmers?—Yes. I think it would be a mistake to have the local authority, and it would be well impossible to carry it on, and besides it would take away milk production very largely from the local farmers about

5348. Mr. O'BRIEN.—Do you think that the small farmer, doing the work himself with his family, would be the best producer of milk—that is to say, having clean conditions and all that, and carrying the business on under his own personal supervision; because it has been maintained that the milk supply of a city such as Dublin would be better in the hands of large farmers or a company, where they could have a large place for inspection. Other people say that the small farmer, who has half a dozen cows, or, perhaps, a dozen, and looks after them himself, and has a personal pride in them, would supply the best quality of milk?—I think the small farmer or medium farmer, that is if he is up-to-date, can certainly produce that milk as clean and more profitably than the other man can, who will have to pay all his hands, and then the industry ought to be encouraged amongst the small farmers.

5349. You think, then, that with proper inspection by the sanitary authorities, you could get the small farmer to supply a clean article under the cleanest conditions?—Certainly, it is quite possible.

5350. In that case it would pay the small man to do it rather than a man or company who had a large number of cows?—I would think so. I think it would be equally clean, and would be certainly better for the country than if the milk were supplied by a great company or firm. You would have to think of the producer as well as the purchaser. He wants to get a means of living.

5351. But, of course, you have in the one case a man and his wife, and, perhaps, a son and a daughter working, and they are working without wages. In the other case you have an owner or foreman and a number of paid hands, and all the rest of it?—Yes, you can have the supply just as good from a farmer with twenty or thirty, or, perhaps, forty cows as from a larger concern, and he would employ people too, and considerable labour.

5352. I think these large dairies in Denmark are supplied by bartered farms?

Mr. WILSON.—They get the milk from farmers. The farmers are bound by a strict code of rules, and if these rules are observed, and illness or disease breaks out, the farmer gets compensation for any of his milk that may be destroyed.

WILSON.—If a cow is destroyed on being found tubercular I think the owner ought to get compensation.

5353. Mr. CAMPBELL.—Yes, if he bought the cow not knowing that it was diseased?—Yes.

The Commission then adjourned until the following day.

FIFTEENTH DAY—SATURDAY, 27th JANUARY, 1912.

The Commissioners met at No. 5, Upper Castle Yard, Dublin.

Present:—P. J. O'NEILL, Esq. (Chairman); LADY EVERARD; MISS MCNEILL; Sir STEWART WOODHOUSE, M.D.; ALER. WILSON, Esq.; DERMOD O'BRIEN, Esq.; JOHN R. CAMPBELL, Esq., B.Sc.; Professor A. E. KEITAN, B.Sc., M.R.C.V.S.

S. W. STRANGE, Esq., Secretary.

Mr. JAMES SCOTT GORDON examined.

5354. The CHAIRMAN.—Mr. Gordon, you are Deputy Assistant Secretary and Chief Agricultural Inspector in the Board of Agriculture and Technical Instruction for Ireland?—Yes, Mr. Chairman.

5355. You prepared your evidence so fully and in such complete detail that if you do not mind, possibly you would read from the notes with which you have been good enough to supply us, and if the members of the Commission desire to ask questions they can do so at any stage. Do you think that would be the most satisfactory way?—Yes, I think that would be most satisfactory, and I can stop at any particular part the Commissioners desire.

5356. Yes, to give the members of the Commission an opportunity of asking questions?—Yes.

5357. If you are agreeable then, and if the Commissioners would be good enough to remember that at any time when Mr. Gordon concludes a passage they are at liberty to ask a question, that would be the most satisfactory course to follow?—I have divided my evidence, as you see, under the following headings:—First, "General"; second, "Department schemes connected with the production of milk"; third, "Regulated milk"; fourth, "Milk supply for labourers"; fifth, "Suggestions"; and sixth, "Tuberculosis in cattle." To the fact that there is a considerable decrease in the export of dairy produce from Ireland is largely due to the prevailing opinion that there is not so much milk in the country as formerly. The total value of the dairy produce (consisting of butter, cheese, cream, condensed

whole and separated milk) exported from Ireland in 1907 was 24,380,745; and in 1910, 24,517,422. Thus in three years there has been a decrease of 4562,864.

5356. Mr. WILSON.—May I ask a question. I want to understand just why you said that owing to the decrease in the export the assumption is that there is not so much milk in the country as formerly. I confess I am unable to follow that reasoning?—Generally speaking, because the amount realised for butter which is exported has become less the prevalent idea is that both the quantity of milk and butter produced in Ireland is considerably less.

5359. In spite of the increase in the number of cattle?—I think the majority of those people who expressed an opinion did not consider in all probability whether the number of cows had increased or not.

5360. Mr. O'BRIEN.—You are only talking of the prevalent idea?—Yes.

5361. Mr. WILSON.—You are not making that point yourself?—No. It is a general idea.

5362. The CHAIRMAN.—It has been suggested to me by an outsider on this question, that as bacon, which is a suitable article of food for the poorer classes, has become so abnormally dear within the past twelve or eighteen months, that a smaller quantity of it has been consumed, and that in lieu of that the use of butter and milk has become more general than under ordinary conditions. Do you think that that would in any way account for the decreased output, and that the production might not be limited?—I would say not. Later on I will go into detail a little more on that point.

5363. It was suggested to me by a person who has more than an ordinary knowledge of the economic conditions of the country that his opinion that had some influence on the restricted output?—In all probability it had some influence, but I do not think that it could possibly account for the decrease in butter exported.

5364. It might be a factor?—Certainly. From the following figures it will be seen that the decrease in butter has not been due to a fall in prices, but to a reduction in the quantity of produce exported. These figures are for the years 1907 and 1910.

	1907	1910
	Cwt.	
Butter,	848,644	636,907
Whole and separated milk, ..	5,418	5,835
Condensed milk,	290,745	292,745
Cheese,	2,440	3,364
Cream,	4,658	13,809
Butter has decreased almost ..	125,000 cwt.	
Whole and separated milk increased ..	624 cwt.	
Condensed milk,	2,168 ..	
Cheese,	606 ..	
Cream,	7,761 ..	
	11,245 cwt.	

5365. The export of cream has more than doubled?—Butter has decreased, and all the other products increased.

5366. Mr. O'BRIEN.—You say, "From the following figures it will be seen that the decrease in butter has not been due to a fall in prices, but to a reduction in the quantity of produce exported?"—In the previous paragraph it is mentioned that in three years there has been a decrease of 4562,864.

5367. Prof. MERRILL.—If anything, the price of butter has gone up?—The decrease in butter and the alleged reduction in the supply of milk have been attributed to the following causes:—(1) An increase in the consumption of milk and butter at home; (2) the increased development in the parcel post trade and in private consignments of small quantities of butter to Great Britain (statistics of which are not available); (3) the sale out of the country of the best cows and heifers; (4) the annual slaughter of good milch cows when sold by town dairymen at the conclusion of a year's milking period; (5) the small proportion of milk produced during the winter months, as shown by the

following table:—(6) the influence of pneumonia bulls; (7) the alleged spread of abortion or sterility amongst dairy stock. With regard to the last of these supposed causes, I should say that abortion is not so generally prevalent now amongst dairy stock as it was twenty-five years ago. At that time it was a perfect scourge, and very little was known as to the cause, treatment, or how it was communicated. It was the popular opinion then that a feeling of sympathy which other animals in the same byre or some house had for the affected animals brought about the disease. It was also by some attributed to scours or smuts in cow-houses, and for this reason goats, especially male goats, were frequently purchased and kept in cow-houses along with the cows. The cause of the disease is now well understood, and in most districts where the disease is prevalent, precautions are taken to isolate the affected animals where buildings are available, and to disinfect thoroughly both animals and buildings; and in many cases through such precautions the ravages of the malady have been considerably reduced. The Department's Veterinary Branch has been carrying out experiments since 1909 on the lines of the Abortion Committee's recommendations, and on the same lines as are being pursued by the Board of Agriculture in England. These work assumes chiefly of—(1) The inoculation of cows with "anti-abortin," with the object of conferring immunity, (2) testing cows suspected of abortion with "abortin"; (3) treating animals for sterility. It would be premature yet to give the results of these experiments; they must be carried out for a considerable time before definite and reliable conclusions can be drawn. Most of the answers have enumerated, no doubt, mentioned some influence on the yield and annual output, but in case of some it can be only to a comparatively small extent.

5368. The CHAIRMAN.—That is your general view of the alleged reasons existing in the public mind for the diminution of the output?—Yes.

5369. And you give little on what you believe to be more sound and expert research?—Yes. If you prefer it I would deal with each of these supposed causes and give my views on them.

5370. You apparently attach some importance to the increased consumption of milk and butter at home?—I think that would depend really upon two things—the question whether wages have increased, and also the question as to whether the standard of living has improved. In connection with the wages, I have gone through a Department return for 1907 on migratory labour. This report was prepared by Mr. Adams, and in it he states that there is evidence from practically every County, to the effect that wages have gone up in twenty-five years by an average of 25 to 30 per cent. In the Board of Trade Report they put the increases in percentages. They said that in 1880 wages were 85.8 per cent.; in 1890, 68 per cent.; in 1900, 100 per cent.; in 1907, 106.7 per cent.; in 1908, 107.6 per cent., and in 1909, 108.6; so that you will see by these figures that there has been a steady and gradual improvement in wages. Working these out, I find that from 1880 to 1909, they show an increase of 27 per cent. in wages for the whole of the time governing that period.

5371. Mr. O'BRIEN.—What length of time did Mr. Adams take?—For the last twenty-five years.

5372. The CHAIRMAN.—The Board of Trade report would confirm his figures and show a more rapid increase even than Mr. Adams acknowledged?—Yes. I think it would be perfectly safe to say that wages had increased in twenty-five years by 25 per cent. Then take the question of standard of living. I think there is no doubt about it but that the standard of living during that period has improved. That improvement, again, has been steady and gradual. I myself have been farming for thirty years, and I took the trouble to look through my farm account books for that period. I find those labourers who purchased 1 lb. of butter per week thirty years ago now purchase from two to five pounds per family per week, and I would say also that more milk on any farm is consumed by labourers than was the case thirty years ago, but I would like also to qualify that. The farm that I have is in a district that I might almost call favoured. There are industries there, and the sons and daughters of farm labourers can find employment in spinning mills; and taking the average wages of a family in that district it would be considerably higher than in other districts throughout Ireland. I only quoted that one because it has come under my own observation.

3373. Lady EVERARD.—Formerly the labourers used partridge and brown home-made bread; and now they use baker's bread and tea?—In my own district that is true. I mention these two points—the improvement in the standard of living and wages, but I do not believe they would account for the great reduction in the export of butter, because that improvement in the standard of living and wages has occurred during the last twenty-five or thirty years. The decrease in the butter exported has only occurred during the last four or five years, so that could not possibly account for it. May I give you the figures. In 1904, 848,323 cwt.; 1905, 813,921 cwt.; 1906, 844,087 cwt.—in that year, 1906, there was more butter exported than in any other year for which the Department has figures—1907, 848,004 cwt.; 1908, 751,942 cwt.; 1909, 739,625 cwt.; 1910, 698,307 cwt.; so really it is within the last four years that the great decrease has occurred, so that the increase in consumption at home could not possibly account for the reduction in the export of butter.

3374. The CHAIRMAN.—It could not be in the same ratio.

Mr. WILSON.—I am not satisfied that it could not be. I have taken an interest in this question of the standard of living from the point of view of the Irish Industrial Associations, and during the last five years the demand for what I may call the petty luxuries of an artisan's house has gone up by about 60 per cent. I am taking the import figures of articles which are not made on a large scale in Ireland, such as jams, biscuits, soap, and similar articles—the things that a man would begin to buy after he got above the poverty line; the increased demand in Ireland for these articles is at least 60 per cent. up in five years, and if that is true of petty luxuries of the small man's house it would account for the increased demand for butter at home and the decrease in export?—I am afraid I cannot agree with that. I am certain that the standard of living has steadily and gradually improved, and I think, too, that in the case of the industries, such, for instance, as the linen trade, that when you find trade is booming and the wages higher more milk or butter might be consumed by the family; but that has not been the case in the last three years. It was the other way. In the majority of the mills in the North of Ireland the workers have been only employed for half or three-quarter time. The shipbuilding has improved, but the improvement, and the increased wages amongst those in the shipbuilding yards, have been counterbalanced by the reduction of wages paid in the linen industry.

3375. How would you account for the enormous rise in five years of this demand for petty luxuries to which I have referred?—I cannot possibly do that at the present moment without going very carefully into the figures.

3376. Lady EVERARD.—Would you not say that the parcel post also accounts for a certain quantity of

butter that is exported from the country?—Yes. I was going to refer to that.

3377. Mr. WILSON.—If you, Ms. Gordon, would think over the suggestive fact that the purchase of articles which are bought by people in the same way as butter is bought, as luxuries, has gone up in five years by 60 per cent., I think you will agree that this would have a very great influence on the butter export trade. Apparently the export and import figures in goods other than butter have not attracted your attention?—No. There has been a considerable increase in the trade of butter through the parcel post, but we have no figure, and I think that increase has been going on steadily for quite a number of years. It has not taken place entirely during the last five years, and again I think that that could not account for the great decrease that has taken place in the export of butter.

3378. The CHAIRMAN.—It has not come like a thunderbolt?—No, it has been going on for years.

3379. Mr. O'DONNELL.—You have no figures from the creameries?—No. The Statistical Branch of the Department has found it impossible to procure figures that are reliable which would indicate what quantity of butter was sent out through the parcel post.

3380. I think it could be got through the creameries.—I should think the creameries could give the information if asked?—With private individuals also there is a considerable trade being done.

3381. The CHAIRMAN.—We have had evidence of that within the last two or three days where the produce of one dairy, a moderately large dairy, was dealt with almost exclusively through the parcel post?—I know quite a number of farmers who have dairies consisting of from twenty to thirty cows, and who dispose of their butter in England, and it is almost all sent by parcel post.

3382. We have had that in evidence before us?—Yes.

3383. Prof. MERRIAM.—The milk total in the year must be considerable?—Yes. The sale out of the country of the best breeders is also given as a reason for the decrease in the butter and the alleged reduction in the supply of milk. That has been taking place for the last thirty years, and I do not see how it could have any influence on the reduction of the butter export in recent years.

3384. The CHAIRMAN.—That has been practically a steady trade?—Yes, for the last thirty or forty years.

3385. Prof. MERRIAM.—More cattle went out of the country last year than for a number of years previously?—There are more cattle in the country.

3386. What about the export?—I will touch on that later.

3387. The CHAIRMAN.—Do the figures show that there has been an increase in the export trade of cows?—Within the last few years there has. I can give you the figures later on. Another cause given for the decrease in the small proportion of milk produced during the winter months, as shown in the following table—

AVERAGE PERCENTAGE OUTPUT FOR EACH MONTH OF A NUMBER OF TYPICAL CREAMERIES, WITH THE MINIMUM AND MAXIMUM FIGURES AT ANY ONE CREAMERY FOR EACH MONTH OF THE YEAR.

Year.	Number of Creameries from which percentages were obtained.	1906	1907	1908	1909.		
		—	45	40	63		
		Per cent. Average.	Per cent. Average.	Per cent. Average.	Per cent. Average.	Per cent. Maximum.	Per cent. Minimum.
January	1.70	1.86	1.80	2.22	4.98	.90
February	1.60	1.60	1.56	1.97	4.54	.65
March	3.30	2.62	2.89	3.31	6.28	.47
April	5.30	4.84	5.41	5.61	8.88	1.63
May	12.20	10.25	11.42	11.62	15.12	5.75
June	15.40	15.10	15.31	15.35	18.05	11.49
July	15.10	15.51	16.09	16.06	19.60	14.25
August	12.60	12.46	14.94	14.06	17.38	12.34
September	12.20	10.70	11.68	12.43	15.17	7.46
October	10.10	10.00	9.98	9.30	12.77	4.21
November	6.60	4.78	4.81	5.78	10.48	2.70
December	3.40	3.25	3.00	3.54	6.70	1.51

5388. Mr. O'BRIEN.—The decrease in tillage has been going on for a large number of years?—Yes, for the last fifty or sixty years. Lastly, I may mention, that there is more land in tillage than there has been for many years. Another reason given for the decline in the butter export is the influence of premium bulls. I will deal with that more fully later on under the head of "Department selection," and I have already dealt with the alleged spread of abortion or sterility amongst the dairy stock.

5389. Prof. MARTIN.—You really think there is less abortion in the country than there was?—Yes.

5390. That the people have become more alive to its danger?—Yes, and that the people know how to treat the animals better than they did.

5391. And to prevent the spread of infection?—Yes.

5392. The CHAIRMAN.—Taking the country as a whole, there is no doubt that a more intelligent idea prevails with regard to abortion and its treatment than existed years ago. One does meet with isolated cases in which the most silly ideas prevail even at the present day, but you cannot get old prejudices rooted up in a short time?—Perfectly true. There were in 1911 1,566,418 cows and in-calf heifers in Ireland. During the last five years, that is from 1907 to 1911 inclusive, there were more cows and in-calf heifers in the country than at any other period since 1860. The decrease in milk, therefore, cannot be due to fewer cows or heifers.

You will notice from the table that from the period from 1854 to 1860 there were more cows than at any other period since, but the period from 1907 to 1910 comes next to it in numbers. You will also notice that the proportion per cent. of cows to the total number of cattle enumerated during the period 1854 to 1860 was about 44 per cent.—there were 44 per cent. of the cattle of the country milch cows. In the period from 1904 to 1910 the percentage is about 33. The next question is the stock exported. The number of cattle exported has also increased. On examining the export figures for the past six years, viz.,—

Year.	Number.	Value.
1906	749,934	£8,938,353
1907	775,281	9,146,915
1908	843,010	10,419,430
1909	823,624	10,983,397
1910	838,382	10,751,593
1911	868,181	11,454,295

It will be found that the number exported in 1910, as compared with 1906, shows an increase in cattle of 119,247, and in value of £2,326,805.

5393. The CHAIRMAN.—That is a very substantial increase?—Yes.

5394. Prof. MARTIN.—What proportion of these are milch cows?—At the present moment I could not say, but I can work it out and hand it in later. The next question is what number of cattle we have in the country. The total number of cattle in the country since 1900 has remained fairly steady, viz.,—

Year.	Number.	Value.
1900	—	4,609,330
1901	—	4,873,323
1902	—	4,732,221
1903	—	4,664,112
1904	—	4,676,718
1905	—	4,545,215
1906	—	4,586,594
1907	—	4,576,456
1908	—	4,732,428
1909	—	4,699,364
1910	—	4,683,888

Average for the eleven years, 1900-1910, 4,586,700

1911 4,711,720

The number of calves reared shows an increase of close on 20,000 in 1910, as compared with 1909. The fact that, while the number of stock in the country remains fairly steady, there are actually more cattle being exported and more calves being reared, would indicate that more milk is being used for the rearing of young stock, and less for manufacture into butter. I believe the decrease in the export of butter is largely due to—(1) a greater number of young cattle being reared; (2) young calves getting more milk and generally being better fed and cared for; (3) comparing the years 1907 and 1910, the increase in the value of dairy produce, other than butter, exported, has been £63,398, whilst the decrease in the value of butter exported has been £424,262.

5395. The CHAIRMAN.—You are giving us your own opinion now in contradiction to the popular views that prevail?—Yes.

5396. Mr. O'BRIEN.—You say that the number of calves reared shows an increase of 20,000?—Yes.

5397. Do you take that as showing that there is less calf mortality?—No, but to show that there were more calves being reared, that the number of cows has gone up, and also the number of young stock being reared; and we have proof of that in the number of young animals that are being exported.

5398. You do not think that is an increase partly owing to the fact that calf mortality has gone down?—I do not know whether it has or not?—Speaking generally, I would say that calf mortality in these districts where white scour is prevalent has been reduced greatly.

5399. In Counties Limerick and Tipperary there has been an enormous mortality.

Prof. MARTIN.—Of recent years.

Mr. O'BRIEN.—Yes, in quite recent years.

Year.	No. of Milch Cows.	Proportion per cent. to Total Cattle enumerated.
1854	1,517,672	43.2
1855	1,561,266	43.8
1856	1,579,529	44.0
1857	1,555,350	44.5
1858	1,555,459	44.6
1859	1,590,289	44.8
1860	1,625,453	45.1
1861	1,565,198	44.5
1862	1,486,935	43.7
1863	1,386,924	44.4
1864	1,349,890	41.3
1865	1,367,444	39.7
1866	1,482,616	39.6
1867	1,533,023	41.0
1868	1,475,339	40.5
1869	1,506,038	40.3
1870	1,539,024	40.2
1871	1,545,660	39.9
1872	1,551,784	38.2
1873	1,528,136	36.8
1874	1,494,315	36.2
1875	1,580,366	37.2
1876	1,532,974	37.2
1877	1,522,811	38.1
1878	1,484,315	37.2
1879	1,654,808	38.0
1880	1,598,047	39.6
1881	1,552,102	37.9
1882	1,597,005	37.1
1883	1,562,324	34.2
1884	1,566,295	33.0
1885	1,617,423	33.5
1886	1,418,644	33.9
1887	1,394,136	33.6
1888	1,384,771	33.6
1889	1,368,781	33.6
1890	1,430,322	33.9
1891	1,442,288	33.4
1892	1,451,699	32.0
1893	1,451,329	32.3
1894	1,457,441	33.0
1895	1,538,988	32.9
1896	1,439,725	32.4
1897	1,454,525	32.1
1898	1,421,192	31.9
1899	1,443,955	32.0
1900	1,438,074	31.6
1901	1,464,683	31.7
1902	1,516,797	31.6
1903	1,453,179	32.1
1904	1,467,547	32.0
1905	1,487,064	32.0
1906	1,456,284	32.3
1907	1,561,463	32.4
1908	1,586,423	32.1
1909	1,548,956	32.0
1910	1,557,384	32.2
1911	1,595,418	33.3

Witness.—Yes, in Cork, Tipperary and Limerick the mortality was very great, and the Department carried out quite a series of experiments. Professor Nocard, the distinguished French veterinarian, came over and found that it was due to a germ disease. The Department gave instructions which have diminished the mortality considerably.

5400. Mr. O'BRIEN.—I should say that in my own part of the country quite 20 per cent. of the calves died?—I have known the mortality to be as high as 75 per cent.

5401. The CHAIRMAN.—I have heard of only half-dozen surviving out of a whole herd.

Prof. METAM.—I was associated with Professor Nocard, and forty-one out of forty-five born died in one case.

Witness.—My argument was that we have more breeding cows and we have more calves being reared in the country. I do not think that the jump of 20,000 in one year could be accounted for by the mortality being less. It is simply because there are more calves reared. Another point is that young calves are getting more milk, and are generally being better fed and cured for. That, again, has been taking place to a very great extent during the last ten years, and my reason for stating it is that the Department have had letters from the leading live stock salesmen in England and Scotland, mentioning that there has been an extraordinary improvement in the class of stock that has been imported from Ireland to Great Britain; that the improvement has been in quality and condition. That is due, I think, to a very large extent, to the work of the Department in the country, and the work of the agricultural instructors. It is due also to the live stock schemes, farmers using better areas, and to their feeding the calves and bringing them up better than formerly.

5402. The CHAIRMAN.—I have had the same independent testimony from cattle-dealers in Scotland who have been in the habit of getting Irish cattle for a number of years, and who have spoken of the enormous improvement that has taken place in the quality of the stock being exported from this country, as compared with the exports of ten or fifteen years ago. These are independent opinions from headholders and cattle-dealers. I want to make it clear that they are bona fide expressions of opinion, uninfluenced by any other considerations than the facts?—My third point is that the produce from milk, other than butter, has increased during the last four or five years by £24,500 lbs. Comparing the years 1907 and 1910, the increase in the value of dairy produce, other than butter, has been £21,500, whilst the decrease in the value of butter exported has been £24,500, and that is bound to have some influence on the output or export of butter.

5403. Mr. WILSON.—I have extracted some figures relative to the imports into Ireland of the petty luxuries of a workman's home. And I find the following results on comparing 1906 and 1910:—

	1906.	1910.
	£	£
Biscuits, ..	76,388	106,707
Chocolate, ..	15,180	25,096
Oranges, ..	20,008	188,797
Preserves, ..	116,949	177,177
Lamps, ..	26,228	67,134
Perfumery, ..	2,365	7,440
Soap, ..	154,905	211,278
Mustard, ..	7,890	11,948
Confectionery, ..	306,109	466,153
Hair, ..	290,472	431,862
Mattresses, ..	8,172	14,552
Total, ..	£1,074,381	£1,646,929

The CHAIRMAN.—If the soap was used in cleaning milk vessels the increase would be very gratifying.

Mr. WILSON.—The increase in the use of mustard was given by a friend of mine as a reason for the present increasing venom in politics. These figures show an

increase of £572,548—about 50 per cent. in four years. I think that only can be accounted for by the assumption that the standard of living in the country has gone up. There is no other way of accounting for it?—These figures are for the last four years?

5404. Yes, Mr. Gordon?—If we had the figures for ten years prior to that we would have them, perhaps, showing a steady improvement. The underlying reason of these figures is the operation of the Land Purchase Act of 1903 and the Labourers' Act.

5405. My argument is that, quite regardless of the figures dealing with the export and import of butter, everything in these statistics shows an increase in the last five years in the standard of living that is phenomenal. If you take the simple things such as I have mentioned the jump is enormous. They show, I suggest, that butter is one of the items for which the home demand has enormously increased?—My argument is that you could not possibly have an increase of £1,500,000 in the cattle exported, or £19,247 in lambs, without consuming a very large quantity of milk.

5406. The CHAIRMAN.—You could not have it produced?—You could not have that increase. We know that the cattle are better fed during the past ten years than they had been before that time.

5407. Mr. O'BRIEN.—In connection with Mr. Wilson's figures, I may mention that the export of Irish biscuits has similarly doubled.

Mr. WILSON.—In every case the most remarkable increases are in articles not made in Ireland, or only made to a comparatively small extent. For instance, there is no mustard to speak of made in Ireland, and the demand for mustard has nearly doubled in four years.

Prof. METAM.—They must be buying more beef.

Witness.—I shall now deal with the schemes of the Department which are connected with the production of milk. In the year 1887 the Royal Dublin Society were given a Government grant of £5,000, to be expended in the improvement of live stock, including cattle. This was administered by the Society annually up to 1902, when, with the concurrence of the Society, it was transferred by Act of Parliament to the Department of Agriculture, which was created in 1899, and commenced operations in 1900. The Department's scheme for encouraging improvement in the breeds of cattle, which was first put into operation in 1901, was based, so far as was possible, on the lines of the Royal Dublin Society's cattle scheme, on the grounds that the latter was well-known and gave satisfaction. In the first year, thirty-one out of the thirty-three County Councils in Ireland took up the scheme. Every year since all counties have done so. I should explain that each county raises a rate of from 1d. to 1d. for Agricultural and Technical Instruction schemes, and the Department supplement this rate by a direct grant, provided the schemes adopted by the County Committee can be approved. The scheme for the improvement of cattle takes the form of subsidising the sale. Briefly, the scheme is as follows:—The County Committee annually offer a number of subsidies, in the form of premiums, varying in value from £10 to £15 each, to the owners of high-class bulls, of certain specified breeds, on condition that small farmers of a certain valuation can have the use of such bulls for their cows at a nominal fee, varying from 1s. to 2s. 6d. per cow. The Committee issue advertisements offering a number of premiums. From among the applicants for these premiums the Committee choose the requisite number of premium-holders, who, as a rule, purchase approved bulls at some of the spring shows and sales recognised by the Department. These recognised sales are attended by the Department's Inspectors, who mark, by means of cards, the animals eligible for premiums, and assist intending purchasers in making their selections. Premiums are usually continued for four years, if the bull proves satisfactory and is kept in good condition. The animals are inspected each year by the Department. The County Committee decides (a) the breeds of bulls to be subsidised; (b) the valuation of the owners of the cows; (c) the number of stated premiums to be given to the same animal, and many other details. The following table shows the number of premiums given each year since 1900, and breeds of cattle subsidised. If you look at the last column, under the head of "Grand Total," you will see that for 1901 the number was 380, and that it has gone up to 1,104 in 1911.

CATTLE SCHEME, 1901-11.

	Shorthorn.	Aberdeen Angus.	Hereford.	Red Lincoln.	Gal- loway.	Kerry.	Reg. Dairy.	Red Fleisch.	Total.	Grand Total.
1901 County Premiums— Total	347	37	43	—	2	—	—	1	—	390
1902 County Premiums— Total	325	52	26	5	4	—	—	—	—	454
1903 County Premiums— Total	473	78	58	5	4	—	—	—	—	618
1904 County Premiums— Extra	537	96	63	10	5	—	—	—	334	—
	2*	—	—	—	—	—	—	—	8	—
Total	545	96	63	10	5	—	—	—	—	743
1905 County Premiums— Extra	599	104	65	10	14	—	—	—	795	—
	21*	7	—	—	4	1	—	—	33	—
Total	620	111	65	10	18	1	—	—	—	826
1906 County Premiums— Extra	647	117	67	8	12	—	—	—	821	—
C.D. Term	26*	16	—	2	8	1	—	—	51	—
	—	—	—	—	13	9	—	3	25	—
Total	641	133	67	10	23	10	—	3	—	897
1907 County Premiums— Extra	604	122	61	13	16	2	—	1	813	—
C.D. Term	31†	31	—	2	16	1	—	—	81	—
	—	—	—	—	33	15	—	3	66	—
Total	635	153	61	15	59	16	—	4	—	945
1908 County Premiums— Extra	600	123	61	5	4	2	—	1	860	—
C.D. Term	35	42	—	—	36	—	—	—	85	—
	—	—	—	—	51	19	—	3	73	—
Total	635	165	61	5	79	21	—	4	—	968
1909 County Premiums— Extra	579	114	78	4	9	2	5	1	812	—
C.D. Term	27	43	—	—	25	—	—	—	100	—
	—	—	—	—	50	22	—	—	72	—
Total	616	157	78	4	35	24	5	1	—	990
1910 County Premiums— Extra	553	104	75	1	11	1	13	—	868	—
C.D. Term	50	57	1	—	29	4	1	—	125	—
	—	1	—	—	60	16	—	—	77	—
Total	628	162	76	1	40	21	14	—	—	1,030
1911 County Premiums— Extra	545	104	35	—	16	2	19	—	667	—
C.D. Term	54	72	5	—	22	5	2	—	168	—
	—	1	—	—	58	16	—	—	66	—
Total	645	240	40	—	90	21	21	—	—	1,104

* Includes eight half-bred Shorthorns.

† Includes two half-bred Shorthorns.

5408. The CHAIRMAN.—There has been a gradual and steady increase?—Yes. Under the head of Shorthorns in 1911, there were premiums given to 645 animals of this breed; 249 to Aberdeen Angus, and 60 to Galloways.

5409. Mr. O'Brien.—The other day we had evidence to show that the best milkers had been produced from Red Lincolns, and I notice by your tables that the premiums for that breed went down to one in 1910?—A great many people have the idea that the Red Lincolns are all good milkers. That is not true. They have got that reputation simply by one man keeping milk records for his herd of Red Lincolns for a considerable number of years, and publishing the records of the milk from that particular herd. The Red Lincolns are kept mainly for beef and producing stores. The Department purchased a number of them—in 1902 they purchased five, in 1904 ten, in 1907 fifteen, down to one in 1910. The Department came to the conclusion that unless the animals were purchased from a farmer who kept records there was nothing to be gained by

purchasing Red Lincolns, as the majority of the animals bred in Lincolnshire were not good milkers.

5410. It was not possible to go on buying bulls from this particular breed where they went in for the milking strain?—They are comparatively few, and the demand for them in South Africa is considerable, and the prices have gone up enormously. £250 or £300 have been given for animals of this particular breed because they had milking records.

5411. The CHAIRMAN.—I want to make it clear that it would be well nigh impossible for the Department to continue buying animals at that price. In view of the fact that one of them would cost as much as two or three ordinary bulls?—Yes. If you take short-horns owned by a number of breeders who pay considerable attention to the production of milk you will find that their record is quite as high as the Lincoln herd mentioned. In 1901 the Department had 247 premium short-horns, and now they have 643.

5412. What I wanted to make clear was that the Department had abandoned the purchase of these animals for no other reason except that it was impossible

Mr. JAMES SCOTT GORDON.—29th January, 1912.

to secure them at a commercial price from the herd from which it was desirable to buy them?—Yes.

5413. And that the ordinary rank and file of that particular type were not better than short horns raised in other parts of the country?—Yes.

5414. Prof. MERRIN.—And at about one-fourth of the price?—Yes.

5415. Mr. WILSON.—With regard to the short horns, are any of the 643 that are now standing at premiums regarded from the milking point of view? Have they a dairy pedigree?—Yes.

5416. Independent of the twenty-one on the registered dairy list?—Yes, but only a few. The registered dairy cow may be a pure-bred or a half-bred cow. It will depend on whether the sire is a registered dairy bull or a pure-bred.

5417. The CHAIRMAN.—A question I want to ask might come in here. Is it not a fact that the Department have purchased bulls from herds where the milking records of short horns are kept for the purpose of bringing them into the country to produce stock that would be likely to improve the milk records of the country?—Yes.

5418. So it has not been lost sight of by the Department to increase the milk production as well as to keep up the standard of best-producing animals?—No, I go into that later on. I now come to loans for the purchase of bulls. The Department give loans to enable small farmers to purchase premium bulls. The loan is two-thirds of the purchase-price, and is repayable in two annual instalments, with 2½ per cent. interest on the outstanding balance. The bulls are required to be insured for the first year, and the insurance is effected with a public company at 5 per cent. for the full purchase-price. In 1911, loans were granted for the purchase of 213 bulls. Really, this loan scheme was started to enable men who were turning very small areas, and who were, comparatively speaking, poor, to purchase bulls at a price which would have been prohibitive if they had not got a loan.

5419. Lady EVERARD.—You spoke about insurance being effected at 5 per cent?—Yes; there is no difficulty in doing that.

5420. Mr. O'BRIEN.—The bulls?—Yes, the bulls I am speaking of.

5421. Mr. CAMPBELL.—Lady Everard, I think, rather understood from your answer that anyone could insure at 5 per cent. I do not think a private individual could insure at that figure?—Anyone can at 5½ per cent. And I think that if an individual approached one or two of the live stock agents and offered 5 per cent. they would be prepared to accept it—some of them might. In the case of the Departmental loans, the number comes up to two hundred, and this induced the agent to give the insurance for slightly less than he would in the case of insuring one or two animals.

5422. Because these bulls insured by the Department do not require to be inspected by the insurance inspectors, they take the Department's inspection?—Yes.

5423. Prof. MERRIN.—The Department, I take it, advises the purchaser as to the kind of bull that would be suitable for his requirements?—Yes, the inspectors at the sales or shows advise the farmers, and all the animals are selected prior to being sold. The farmer can always have the advice of the Department's inspectors. In a great many cases the farmers ask the inspectors to look at animals, and they advise them.

5424. Lady EVERARD.—They have great faith in the County agricultural inspectors?—Yes.

5425. Mr. O'BRIEN.—May I ask if it is the practice of the Department before giving premiums to any bull to have it tested with the tuberculosis test?—No, but it is optional for the County Committees to put that into operation if they desire, and within the last few years some of the County Committees have made, the test obligatory, and now it is becoming much more general to have animals exposed for sale at these spring shows or exhibitions tested prior to their going there, and with a certificate that the animals are free from tuberculosis.

5426. Does the Department, in selecting bulls for premiums, make it a *quæstio* that they be tested?—No, that is left entirely to the County Committees.

5427. The Department is sending out or ordering, sending bulls for the improvement of the cattle of Ireland without testing them to see whether they would pass the tuberculosis test?—Yes, but, of course, the Department requires that in case of a premium bull the animal must be kept in a loose box by himself. The cows are much more likely to transmit the disease than the bull; therefore, no great advantage is gained by testing the bull, that is in preventing the spread of tuberculosis. It is a guarantee to the purchaser that he is getting a more healthy bull if he gets a certificate that the animal is free from tuberculosis.

5428. The majority of these bulls that are sent down for show purposes, and sold at spring shows, are all very carefully looked after and fattened up from their early infancy, and they may look very well, but at the same time not be free from tuberculosis, which may break out when they are, perhaps, a year or a year and half old. I ask this question because I had an unfortunate experience in the matter, and I did not know whether the Department had taken that at all into consideration—that they should only grant premiums to bulls that were certified as free from tuberculosis.

5429. Mr. CAMPBELL.—Do the Department find that a large percentage of these bulls die from tuberculosis?—I only know of one case since 1900.

5430. Mr. O'BRIEN.—Of premium bulls?—Yes, I only heard of one case since 1900. I do not think the Department would be justified in making such a rule, that all bulls should have to be tested. It is much better to allow the local authorities to decide that and public opinion to bear upon it.

5431. The CHAIRMAN.—And they would speak from experience, and their judgment would be influenced by the experience they had in the past?—Yes.

5432. Mr. WILSON.—With regard to these premiums, is the premium given after the sale or before the animal is sold?—The animal is selected for a premium before the sale.

5433. That is not what I meant. In your opinion who gets that premium the first year?

Mr. CAMPBELL.—The man that most needs it.

Witness.—Your question, Mr. Wilson, is—is it the breeder or the purchaser that gets the enhanced price? I would say both get part. Take a sale like the Royal Ulster Sale at Belfast. At first the price of premium bulls was high, because there was a limited number bred, and the demand was greater than the supply. In recent years I have seen premium bulls sold, and the difference in price between the top premium bull just below the standard, and the premium one which is above the standard, is very little.

5434. Mr. CAMPBELL.—That applies to Belfast more than to Dublin?—Yes. The reason is that the number of bulls passed there is greater than the demand. Even last year some of the Aberdeen Angus bulls that got no premiums obtained as high prices in Dublin as those that got premiums. It is all a matter really of supply and demand. As a rule, both the breeder and the purchaser derive an advantage from the premium. Speaking generally, I would not say that the breeder got the whole premium, or that the purchaser got the whole of it.

5435. The CHAIRMAN.—I think it is quite fair that the premium should be divided, because I think the breeder is entitled to some consideration in producing the animal?—Yes. Some people attribute the decrease in the quantity of milk produced in the country to the influence of the class of premium bulls selected, and affirm that these sires produce bad milking heifers. It would be interesting and instructive to know the grounds on which those who make such an assertion base their opinion, so, so far, no facts have been adduced in proof of the accuracy of this contention. If records were kept of the milk of the cows that have been sired with premium bulls, and then of the female progeny from these cows, reliable data from which to draw conclusions would be available, but, so far as I am aware, no such data are

in existence. I may here mention that at all the Department's Agricultural Stations milk records are being kept of the dairy stock, and at the Ulster Dairy School an experiment is being carried out which, it is hoped, will in the course of time give an indication of what influence the sire has upon the milking properties of his offspring. It has also been stated frequently that Scotch shorthorns, though they may excel as beef producers, are very inferior as milkers, and that the Department have imported large numbers of bulls of this type to the detriment of the dairying industry. Now, there are three types of shorthorn—the Booth, the Fries, and the Scotch, and good and bad milking strains are to be found in each of the three types. In this matter everything depends upon whether the owner or owners of these strains have in previous years paid attention to the production of milk. At the Ulster Dairy School the Department have a dairy herd of thirty cows. Nearly all of these were purchased as yearling heifers in the Cockerstown district, and most of them are the progeny of pure-bred shorthorn bulls of the Scotch type. Some of them, although not eligible for entry in the Shorthorn Herd Book, are practically pure-bred, as their sires, grandfathers and great grandfathers were pure-bred shorthorns. The average yield from this herd in 1910 was 650 gallons. Since 1900 the Department have purchased in Scotland and in England 604 bulls, 316 being shorthorns and 290 Aberdeen Angus and Galloways. The greater number of these were sold to applicants in the very poorest districts in the congested areas, where dairying is not pursued to any considerable extent, but where the raising of store cattle is the chief industry. At the Albert Agricultural College, Glasterin, the milk records of the dairy cows have been kept for a great many years. The following table shows the average yield of milk from these cows for the last twenty-one years, with the exception of two years, for which the records cannot now be procured. The animals kept in this herd are bought in the Dublin market as they are required. They are high-class cows, bred in different parts of the country, from which they are sent to the Dublin market for sale. The figures show no decrease in the average yield of milk per cow—

YIELD AVERAGE OF ALBERT AGRICULTURAL COLLEGE
HERD, 1891-1911.

Year.	No. of cows.	Average yield—gallons.
1891	32	700
1892	32	718
1893	29	750
1894	30	774
1895	32	730
1896	29	701
1897	30	754
Average,	31	718

Mr. PATRICK CLUNE examined.

5445. The CHAIRMAN.—Certainly not. (To Mr. Clune.)—Will you tell us the period over which your experience of the Albert Institution extends?—Since 1878.

5446. You are familiar with the dairy farming that has been carried on at the Albert Institution during that period?—Yes.

5447. And you are familiar also with the class of animals kept on the farm?—I bought them all.

5448. Of course, we cannot expect you to retain in your memory the prices of the individual cows that were bought at different periods, but speaking generally, do you think that there has been any substantial change or increase in the price, say, from 1880 to 1890, and from 1890 to 1900?—Very little for the same class of cow.

Year	No. of cows.	Average yield—gallons
1900	30	774
1901	31	800
1902	31	740
1903	30	755
1904	19	724
1905	20	774
1906	25	810
1907	27	874
1908	28	737
1909	36	700
Average,	32	771

1910	32	766
1911	32	805

so that really, if anything, there has been an upward tendency. That is the yield for twelve months.

5449. The CHAIRMAN.—That rather rebuts the statement that has been made that the introduction of Shorthorn bulls has had a detrimental effect on the production of milk. Although the average yield was higher in 1906-7 than in 1911 it must be remembered that the past year was not very favourable to the production of milk, owing to the very dry weather?—These cows, as a rule, come from almost all over Ireland with the exception, perhaps, of the North.

5450. Prof. MURRAY.—You do not know their breeds?—They are shorthorn crosses.

5451. Mr. WINNOC.—Is there any record of the price paid for these beasts?—From £20 to £25.

5452. It may be that the cows that are giving this average, cost you more than they did twenty years ago?—I do not think so. The farm manager only buys the cow that is likely to give the most milk.

5440. Mr. O'BRIEN.—These animals are not fed more expensively to give a larger quantity of milk?—They are well fed—better than the average cow in the country.

5441. The CHAIRMAN.—They are not fed regardless of cost?—No. Speaking generally, there has not been a great difference in the cost of feeding.

5442. This Albert Institution has been under a Government Department, and naturally it would be the desire of the person responsible for buying the cows to have the best type of animal in the herd?—Yes.

5443. So that there is no change of policy with regard to the class of cows bought, or the treatment to which they are subjected, within the past twenty years. I know the place before it came under the Department's administrative rule, and I do not think there is any radical change in the class of cattle bought or the feeding given, so I think the records may be taken as a fair indication of the normal condition?—That is so.

5444. Mr. WINNOC.—I think we may ask for the prices.

Mr. CAMPBELL.—Mr. Patrick Clune, Inspector of Live Stock under the Department, who knows more about the milk trade than any man in Ireland, is present, and was responsible for the management of this place until a few years ago, and if you see no objection, I should like to put to him a few questions.

5440. And you are familiar with the prices that were paid during the following decade from 1900 to 1910?—Yes.

5453. And has there been any considerable variation in the prices of the cows during that period?—The variation depends more upon the season than upon the class of cow. In the spring you could get a cow a little cheaper than at the time of the year I usually bought them, in August or September, when cows were scarcer and there was a greater demand.

5454. Of course, you have bought at different periods?—Yes.

5455. Some years you might have been able to buy a larger number at the period at which you thought they would be cheapest?—Yes.

5433. But at other times you would be compelled to buy regardless of expense to keep up your supply?—Yes.

5434. With regard to feeding, have the cows been fed in such a way as an ordinary farmer working for profit could not afford to feed them?—No, certainly not, there is no extravagance. If there is profit at all in a cow it is to be derived by feeding her well.

5435. Of course, one would naturally expect that the housing of the cows would be, perhaps, a little more elaborate at Glasnevin, and their comfort, perhaps, greater than would be found in the ordinary dairy herd, but there was nothing like extravagance practised. It was done on purely commercial lines?—Yes.

5436. Has the cost of keeping cattle increased, do you think, since you were first familiar with the place?—The cost of keeping was practically the same. Hacks formed the basis of their food, and they were produced on the farm, and hay was also produced, and the rest of the land, of course, was the same throughout, except a little higher price for feeding stock—oats.

5437. Mr. O'BRIEN.—What about the wages?—There was very little difference. Wages thirty years ago were 14/- a week, and they have been raised to 15/- or 16/-.

5438. The increase of wages was not a substantial impact on the cost of raising the milk?—No.

5439. Mr. WILSON.—In your opinion, the price that was paid for these high-class dairy cows in 1911 is not very different from what is paid now?—No.

5440. Prof. METTAM.—Do you keep the cows from year to year, or do you dispose of them when they become dry?—Some of them. A cow that milked 1,000 gallons, I would not part with her.

5441. One that yielded 500 gallons you would?—Yes.

5442. Lady EVERARD.—Had you a cow that gave 1,000 gallons?—I had one that gave 1,300, but she milked for the entire year; 700 gallons is very good for a cow.

5443. The CHAIRMAN.—Records are always kept for the year?—Yes. The day the cow is purchased there is a number put on her horn, and her milk is weighed morning and evening up to the time she leaves.

5444. Prof. METTAM.—Do you think there has been any improvement in the quality of the cows in the Dublin market during this period?—I would say there is an improvement.

5445. As regards their milk-producing properties?—Yes.

The CHAIRMAN.—The figures here would rather indicate that there is an improvement. The average for 1911 is higher than for any previous year.

5446. Mr. CAMPBELL.—These cows have not been selected from any particular herd or district, and they may be taken as a sample of what is sold in the Dublin market?—Yes.

5447. Mr. O'BRIEN.—They are the best cows in the Dublin market.

Mr. CAMPBELL.—Not absolutely the best. I would like to get the best.

The CHAIRMAN.—The best cow in the Dublin market goes to the Model Farm.

5448. Mr. CAMPBELL.—We are told that the best cows go to Great Britain. Has there been an increase, in your experience, in the demand for good milk cows from Great Britain?—Yes.

5449. When did the competition begin to be acute?—Within the last twenty years, and it has increased yearly.

5450. Prof. METTAM.—There is a keener competition now for these good cows?—Yes. For the London market there is a keener competition for the great big cow that is wanted there. For Scotland they want a moderate-sized cow, and there was one man who bought on an average fifty cows for Scotland every market day. Now there are a greater number buying the big, good cattle.

5451. Mr. CAMPBELL.—Would you draw from that the inference that the milking qualities of the Irish cattle are going down?—No, but that they are going up.

Prof. METTAM.—The average for 1911 is less than for 1907 in the Glasnevin records.

5452. The CHAIRMAN (to Mr. Gordon).—Mr. Gordon, Professor Mettam has directed attention to the fact that the average for 1911 is less than for

1907, but it must not be lost sight of that last year was an abnormal year in the matter of drought?—Yes, it has had an effect all over Ireland.

5453. There was a universal complaint all over the United Kingdom?—Yes; in some parts of England the cows went almost entirely dry.

Mr. WILSON.—That makes the figures for 1910 more mysterious.

5454. Lady EVERARD (to Mr. Clune).—Mr. Clune, are the cows in the Dublin market sold before calving?—No, after calving.

5455. Then the calves remain in Ireland?—Yes.

5456. Mr. WILSON.—What would be the average price of the cow you describe in the Dublin market?—It varies from £18 to £23; an exceptional cow might go up to £25.

5457. I would like if you could solve that problem about the yearly averages of milk yielded. The remarks about 1911 make one marvel what can be the explanation of the figures in the other years?—You cannot assign a particular reason. The manager might happen to buy a few bad milkers, and that would bring down the average.

Mr. GORDON.—It might also be due to a greater percentage of the cows being young—cows having their second or third calves as compared with the cows having their fifth or sixth calves.

5458. The CHAIRMAN.—A cow that would give 1,300 gallons of milk would be very profitable?

Mr. CLUNE.—She would be a little spring well.

Examination of Mr. Gordon continued.

5459. Mr. GORDON.—I now come to the Dairy Cattle Registration Scheme. Several County Committees have from time to time requested the Department to take steps to improve the milking qualities of Irish cattle, on the ground that, owing to the demand for stores, too much attention was being paid to the production of beef. Some of the Committees wished to establish registers for their own counties, but as there are thirty-three County Committees in Ireland, the Department, the Agricultural Board, and the Council of Agriculture, deemed it undesirable to have separate and independent schemes for each county. It was decided, therefore, that the Department should themselves establish a register for such animals—cows of a defined type and of high-class milking qualities—and, accordingly, an Irish Dairy Cattle Register was started in 1906. Briefly, the scheme is as follows:—Owners of cross-bred and pure-bred shorthorn dairy cows are invited to apply to the Department for the inspection of animals which they consider suitable for entry. The Department have three animals inspected for general merit (appearance). The owners then keep a record of the yield of milk of those animals provisionally selected. If at the end of the milking period the yield of milk from each animal is 500 gallons or upwards, containing 3.5 per cent. of butter-fat, the animal is duly registered. The Department during each season inspect the cows several times, have the milk weighed, so that the records are kept properly, and take samples of milk to be tested for butter-fat. The owner of each registered cow must have the animal mated with a registered dairy bull, or a pure-bred bull of her own type, passed by the Department as suitable for a premium. The female progeny from these registered cows are eligible for entry in the register after inspection, and are entered only when their milk record is up to the standard required. Bulls, the progeny of these registered cows mated with approved sires, are also eligible to be selected for premiums provided they reach a fair standard of merit. Of these selected dairy bulls, there were eight in 1909, twenty in 1910, and twenty-three in 1911. There are at present 1,570 cows registered or being tested. The average milk yield is 718 gallons, the maximum being 1,469 gallons, and the minimum 500 gallons. These are, of course, selected cows, and are not to be taken as representing the average dairy cattle of the country. When it is considered that in 1911 there were 1,385,418 milch cows in this country, and that the average annual yield is estimated at 400 gallons per cow, it is clear that there is considerable room for improvement. It has been proved by those who keep milk records under the Department's Dairy Register Scheme, that there are in Ireland many cows which give milk yields of from 600 to 1,300 gallons per annum. This shows clearly that if the average for

the whole country is 400 gallons only per annum, there must be hundreds of cows giving very much less than 400 gallons each, or, in other words, there must be a large number of cows which do not pay for their keep, and which are mere pensioners on the farm.

5486. Prof. MERRILL.—Is there any charge for the registration of these cows?—No, 6d per cow; that is the only charge.

5487. Mr. O'BRIEN.—Was it not 3s. 3d. No, only 2s. 6d. I now come to deal with milk records. It is evident that these unprofitable cows should be got rid of; but they must first be identified. This can be done only by keeping milk records, that is, by weighing morning and evening at certain intervals, say, every week on a particular day, the milk of each cow in the herd from the time she calves until she goes dry, and calculating from these weights the total annual yield. By this means farmers are enabled to determine which animals pay and which animals are being kept at a loss. The keeping of such a record is comparatively simple, as it involves a very small cost and hardly any labour. The great advantage gained by keeping records is that it enables those who own the animals to determine which cows to keep, and from which they should breed and retain the better calves. It usually follows that if a cow is a good milker her female progeny will also milk well. A good milking herd can be built up only by selecting the best milking animals and breeding from them. It is astonishing what can be accomplished in a few years by adopting such a course. As one of several instances where this course has been adopted, I may quote the results achieved in a private dairy herd owned by Mr. John Evans, Burton, Lincoln. In 1890 he started to keep records of the milk yield of 51 cows. During that year the average yield per cow was 740 gallons. In 1910 the average yield of 51 cows (294 per cent. being that of all heifers) in the same herd was 834 gallons, an increase of well over 100 gallons per cow.

5488. Prof. MERRILL.—Notwithstanding that there was a large percentage of cows that did not come up to their full milking?—Yes. But it is sometimes the case that although a cow may give a large quantity of milk, yet the milk will not produce a high yield of butter, or, in other words, it is poor in butter-fat. It is, therefore, equally important to ascertain the percentage of butter-fat in each cow's milk. Appreciably accurate information on this point may be obtained by taking samples of each cow's milk once a week (in the morning and in the evening), mixing them together and preserving them until the end of the month, when the composite sample can be tested for butter-fat. It is quite as necessary to weed out those cows that give milk with a small percentage of butter-fat as those that give a small quantity of milk.

5489. Mr. O'BRIEN.—Why?—Because if you are making butter, or even cheese, from the milk of a cow under three per cent. of fat, you produce less in a given quantity.

5490. I was thinking of the matter from a point of view of a certain number of farmers—all they want to do is to produce a certain quantity of milk, and though in certain places there is inspection for the quality of the milk, you would find in most country towns that there is no inspection of butter-fat?—That is not my experience.

Prof. MERRILL.—Take the milk sent into the country.

Mr. O'BRIEN.—That is taken on the butter-fat; but there are a large number of people around who produce milk for sale, and they want quality.

5491. Prof. MERRILL.—And the inspector comes along and prosecutes them if the fat is below the standard?—The inspection is made in the country, and also with regard to butterfat and separated milk, to see if there is water added.

5492. Mr. WILSON.—You put your standard of butter-fat very high?—I think it is advisable to do so.

5493. That seems to me excessively high as a minimum?—There were very few animals that had to be rejected; many of them went up to 4.6 and 4.8 per cent.

5494. The CHAIRMAN.—What percentage were rejected by reason of a low percentage of butter-fat?—I cannot say that, but there were very few of them.

5495. A very limited number?—Yes, these cows are milked at regular intervals, and not like where a herd is milked to supply a town only in the morning and early in the afternoon.

5496. Lady EYRE.—I see that in the United States the standard is 3.25 per cent. of butter-fat, and 8.5 of solids not fat. That percentage is required in the United States.

Prof. MERRILL.—Three per cent., the legal standard, is on the low side.

Mr. O'BRIEN.—We had a witness here yesterday who gave instances of where the standard in the herd was below three per cent. in some instances.

The CHAIRMAN.—And he said that he intended getting rid of this class.

Mr. O'BRIEN.—It was remarkable that the average of the whole herd should have fallen at intervals very much below the standard. Of course, he could not explain it.

5497. The CHAIRMAN.—And it only shows what risks are being run by people purveying milk. They are liable for prosecution, because the cow gives milk below the three per cent. standard of fat, and sometimes a milk vendor may lose his character through no fault of his own. That is a great hardship, and must restrict the trade?—The Department's reason for keeping the standard so high is that it is the basis for building up a dairy herd. As regards the influence of the bull, attention should be paid to the selection of the bull, even when breeding for milk. The sire undoubtedly has an influence upon the milking properties of his female progeny, but how far that influence affects his stock it is impossible to say. So far as I am aware, no records of experiments have yet been published which would sufficiently accurate details to warrant a definite opinion being expressed on the subject. We know that some male animals have greater powers of progeny as sires than others, and that some bulls produce better milking heifers, with better developed udders, than other bulls; but how far this is attributable to the ancestry of the bull it is difficult to determine. Personally, I believe that the bull has an influence on the milk-producing properties of his female offspring, but I do not believe that a bull with a milking pedigree, or one sprung from animals that are good milkers on both sides, will, if mated with cows giving a small yield of milk, produce heifers which will give a large yield. My opinion is that unless the dam gives a large quantity of milk, one can hardly expect her heifers to be good milkers.

For several years past there has been a steady and increasing demand for bulls of milk pedigree, not alone in Ireland, but in England, especially in districts where milk is being produced either for sale or for manufacture into butter. During the last three years the Department have received a number of inquiries from farmers in the dairying districts of Ireland for bulls of this class. The demand has been partly met by the purchase of registered dairy bulls, the progeny of cows registered under the Department's scheme, and the Department also have sent their inspectors to England to purchase bulls of this type for applicants. There are, however, in Great Britain not more than twenty pure-bred shorthorn herds where records are being kept, and where bulls are bred on milk pedigree lines. The number of bulls is, therefore, low, and the animals difficult to procure at reasonable prices. It must be admitted that at present only a very limited number of Irish breeders of pure-bred shorthorns keep records of the milk yields of their cows. In the year 1911, however, twenty owners entered 115 pure-bred cows, and it is to be hoped that in a few years there will be quite a good supply of bulls from pure-bred registered cows in the country. The fact should not be overlooked that the dairying districts are confined to certain areas (as shown on this map), and that outside these districts there are other areas devoted to the raising of shire cattle, or else to the growing of stores. Some authorities in Ireland hold such strong views on the great advantage of milk pedigree bulls that they would confine all the premiums to bulls of that type; but it must not be forgotten that, connected with the breeding of cattle, there are three important industries:—(1) dairying, (2) the trade in stores, and (3) the fat or beef cattle trade. In 1910 the export of dairy produce realised £4,017,432; store cattle (including calves), £5,099,354; milk cows and heifers, £1,162,597; and fat cattle, £4,331,734. The total export cattle trade in 1910 was, therefore, worth £11,450,285, or nearly three times the value of the total export trade in dairy produce. All these industries are deserving of encouragement and assistance, and the Department accordingly, would

not be justified in supporting one to the disadvantage of the other. In 1910 the Department inserted a provision in the Dairy Cattle Regulation Scheme with the object of encouraging the members of creamery societies, or groups of farmers (who would farm themselves into an association), to keep records of the milk yields of all their cows. These societies are called cow-testing associations. Each association appoints a secretary, who sees that the records are kept, and tests the milk for butter-fat. The Department supply record books and a small money grant to each association to assist in paying the secretary. Twelve associations have already been formed, with 163 members, who are prepared to test their cows, which number 1,425.

5492. Mr. WILSON.—Are you, from the knowledge that is available at the present time, of opinion that these associations are likely to grow. Have you any information about these progress during the last few months?—All the information we have got up to the present seems to point to their rapid growth.

5493. Because I assume you would like it that this has at the very best been of improvement?—I quite agree with you.

5494. Mr. O'BRIEN.—I remember at the beginning of this idea of dairy cattle registration there was a great lot of talk, and I tried to hammer it into the heads of some people that cow-testing was the most essential thing. A number of people who were at this meeting to which I refer spent a very long time discussing whether pecuniary should be increased or not. They never got any further than that; but I think that has altered. I think now that farmers are beginning to realize that they have it in their power, if they keep records, to establish good dairy herds which will give a very much higher yield of milk?—Yes.

5495. With regard to these cow-testing stations, is the position settled by the Department, or can any creamery become a station?—Any creamery or body of farmers.

5496. Even although there was another one already established comparatively near them. For instance, there is one at Glenwilliam, near Balbriggan. I am at Ardagh, with two hundred and seventy suckers. Would our proximity to the other station deter us from becoming a station?—It would depend on how many members would join, and how many cows it would be proposed to keep records of. That would be the determining factor.

5497. And not the distance from another station?—No.

5498. I did not know whether the Department allocated to each county a certain sum of money?—No, those who ask first will be first served.

5499. The CHAIRMAN.—Kilbenny was the pioneer?—It was in the dairy hall, but not in the keeping of records.

5500. Mr. CAMPBELL.—There are two inspectors whose duty it is to attend to this and nothing else?—Yes.

5501. Prof. MERTON.—To the cow-testing associations?—Yes.

5502. Mr. CAMPBELL.—In addition to the attention that is given to them by Mr. Clune, who may be regarded as our chief live stock inspector.

5503. The CHAIRMAN.—And there are agricultural instructors also helping.

Mr. CAMPBELL.—Yes.

Witness.—I now come to another part of my evidence—the season of calving.—The time of year at which cows calve influences the yield of milk to a considerable extent. This has been shown by the experiments on winter milk production carried out in County Cork in the years 1907-8, under the auspices

of the Agricultural Committee and the Department, by Messrs. Adams and Fendergast. Two centres were selected, and twenty cows in all were tested. Ten of these cows calved in November, and ten in March and April. The November calvers gave an average yield of 803 gallons, and the spring calvers a yield of 680 gallons, a difference of 123 gallons per head in favour of those that calved in November. If we take the value of the milk at 54d. per gallon, these winter calvers left a return of £2 16s. each more than the others. This increase of milk from the November calving cows was undoubtedly due to the effect of the grass stimulating the flow of milk when the cows were turned out in May, and, as a result, these animals milked much longer than those that calved in spring. I do not mean to suggest that all dairy cows should be managed so as to calve in October, November, or December, but if it were so arranged that a much larger proportion of the total number of cows in Ireland calved in the autumn or early winter the yield of milk would be greater, and, in my opinion, it would be advantageous to the whole dairy industry of the country. In addition to the County Cork experiments already referred to, experiments were conducted in County Down on two farms during the years 1907-8-9, and in County Tyrone one experiment of a similar character was carried out in the years 1910-11. Another series was carried out at Crossliff Agricultural Station during the period 1908-9; and the Department are at present carrying out an experiment in winter dairying at Ballyvaughan Agricultural Station. It is intended to continue this experiment for a number of years. The results of the experiments show clearly that winter dairying will pay when cows give an average yield of 650 gallons of milk.

5504. Mr. O'BRIEN.—Before leaving this question of the Cork experiment, how were the cows selected?—In that case the winter cows were selected from the herd—five average cows in each case, and one or two had to be brought to make up the number. The cows were simply selected for appearance.

5505. Without selecting them on their record, it could not be said to be a really accurate test, I think?—There were no records being kept.

5506. Prof. MERTON.—There was no material difference between these cows?—No.

5507. Mr. O'BRIEN.—I ask this question not to cavil at the experiment, but I asked at the time a great many people were complaining that the experiments were being carried out to show a certain thing, and that the cows were selected to prove that?—The cows were valued in every instance, and the winter cows of one of the farms totalled £250 and the summer cows £277. They ran as follows:—£16, £17, £18, £14, and so on, and the summer cows, £19, £18, £18, £16, and so on. So that as far as possible they were of the same type, size and value, and it was the same with the other herds.

5508. The CHAIRMAN.—Will you kindly resume where you left off before the luncheon interval?—Sir Chairman, I think the last question I was asked was with regard to how these winter cows were selected for the experiments, and I explained that the average cow of the herd was taken, and as nearly as possible they were the same size and value. In the Cork experiments on one farm the winter milking cows left £4 6s. 3d. net profit, and the summer cows a net profit of £1 10s. 3d. On another farm the figures were—£5 11s. for five winter calvers, and for five summer calvers £4 12s. 11d. In the County Down experiment the figures were—for winter calvers £3 1s. 8d. and for summer calvers £1 6s. 10d. I have gone into the figures in connection with these experiments more in detail on a sheet that I have here.

5509. Mr. O'BRIEN.—That is net profit?—Yes, in every case. Here are the figures:—

Mr. O'Callaghan's Farm.

5 Winter calvers averaged	...	...	830 gallons each, leaving a profit of	...	£4 6 2
5 Spring do.	...	...	678 do.	...	1 16 1
Difference	128 per cow	...	...	...	£2 10 1

Mr. Wolfe's Farm.

5 Winter calvers averaged	...	...	709 gallons each, leaving a profit of	...	£5 17 9
5 Spring do.	...	...	682 do.	...	4 12 11
Difference	87 per cow	...	...	...	£1 4 1

DOWN.

Mr. Watson, Dundee.

4 Winter calves averaged	...	...	275 gallons each, leaving a profit of	...	£3 1 8
4 Spring do.	...	...	281 do.	...	1 0 10
Difference	84 per cow	...	...	...	£2 0 10

It is evident from these experiments that a cow can be induced to yield from 80 to 100 gallons more milk when she calves in November instead of in April.

Useability Experiments.

1st Year, 1906-7—5 cows averaged	...	...	708 gallons. Cost of producing was 4d. per gallon.	...
2nd Year, 1907-8—10 do.	...	...	706 do.	45d. do.
3rd Year, 1908-9—6 do.	...	...	734d do.	45d. do.

Co. Tyrone (Liskey).

	Average yield.	Average price of milk at local creamery.	
5 Winter calves	630 gallons.	5.33d.	Profit, per cow, = £3 4 0
4 Spring calves	479 do.	4.73d.	Loss, do. = 0 5 9

Difference 150

The Useability experiments were carried out for three years, and we worked it out from that, that the cost of producing a gallon of milk all the year round would be 4½d. The first year it would be 4d.—five cows with an average yield of 708 gallons; in the second with ten cows, with 706 gallons average yield, 4½d., as the return in milk per cow went down the cost went up. The third year, with five cows, of an average yield of 734 gallons, the cost was 4½d., so that the average for the three years would be a little over 4½d., and I put down that the milk could be produced throughout the year for 4½d. a gallon.

5510. The CHAIRMAN.—That is the production, without the cost of distribution—that is the prime cost of production?—Yes, with every other item included, except distribution.

5511. And with a reasonable percentage for depreciation?—Yes, and insurance.

5512-13. Mr. O'Brian.—At that price, 4½d. a gallon, prime cost, you mean that the profit on the production would be one penny per gallon—I mean that 4½d. in my own part of the country (Limerick) is the average price for milk received at the creamery, and the expected milk is valued at one penny a gallon. What you get from the creamery only covers the cost of the production of the milk?

The CHAIRMAN.—There is a further consideration, that the value of the milk produced at this particular season would be higher than that which was produced in Limerick in the summer season.

Mr. O'Brian.—I am giving the average price, which is 4½d.

Witness.—The average price of the winter milk, in the Co. Cork, taken from the creamery price, was 4.87d.; the results of these experiments are based on that price. The summer price was 4.6d. Take the North of Ireland experiments; they were based on the same figures. In the Co. Tyrone area the milk was based on the creamery price.

5514. Mr. O'Brian.—You laid down somewhere in your evidence that a cow should give 650 gallons on an average?—Yes, if they give less winter production would not pay.

5515. I came to the conclusion that my average production was not high enough to make it pay, and I worked it out that it could be made profitable if I got an average yield per cow of 660 gallons. I am glad to have my experience confirmed by you.

The CHAIRMAN.—Did you start with the assumption that you were going to have winter dairying, and were your cows mated with a view of calving for the production of winter milk? Mr. Gordon has shown that where the cows commence calving in November the largest profits can be realised from the production. In starting your winter dairying did you start on that basis?

Mr. O'Brian.—I did.

The CHAIRMAN.—I thought you only did it at haphazard?

Mr. O'Brian.—No. My herd consisted of about eighty cows, and I took twenty or twenty-five, just as an experiment, for some years. I kept records, and I

found that my average yield per cow was not high enough to make winter dairying pay—that to make it pay at the price I could get in Limerick would require a yield of over 660 gallons per cow; but what I thought would make up for it was that the winter calves were, relatively speaking, worth so much more. My herd was suffering greatly at the time from calf mortality. I remember in one year I had twenty milk winter cows and fifteen winter calves lived. Of sixty cows that were calving in the spring only ten of the calves lived in that year; so that from that point of view winter dairying paid well. The calves were fine and strong and went ahead; so I think that one has to take that into consideration when talking of winter dairying.

Witness.—In the results that I have given I have taken nothing into consideration but the question of the milk. If you take into consideration the calves, and the cost of keeping the cow when dry, it would be decidedly in favour of winter dairying.

5516. Lady Eversham.—Do you not think the calves would be better?—Yes, they will realise more money. The experiments in Cork show that the November calves leave a profit, and that those that are born during the spring months leave a loss. They do not actually pay for their keep.

The CHAIRMAN.—I think the factor which operates most powerfully of all is that the period of lactation is protracted. You get a six weeks longer milking period than you would get from house feeding.

5517. Lady Eversham.—You spoke of insurance, Mr. Gordon?—Yes.

5518. What is the cost of insuring each milk cow?—We take it at 5 per cent. We were assuming that the cows were worth £20. As a matter of fact, they were not insured; that was only put in for the purposes of calculation. Depreciation was fixed at the same rate—5 per cent. These were taken into account before these figures were deduced.

5519. Mr. O'Brian.—You consider it necessary to write down the value of the cows?—Yes, if you did not know the price you could not tell whether there was a profit or a loss at the end of the year.

5520. If you take a three years' old cow, and get a couple of calves out of her, you will sell her at a higher price than when you started?—Yes.

5521. Prof. Murray.—Of course, the depreciation would be greater in the case of an old cow than in a young one?—It would. I might mention that in the Tyrone experiment the difference was 150 gallons in favour of the winter calves. I should also have mentioned that the average yield of the five spring calves was 479 gallons, and instead of a profit there was a loss of 5d. 9d. per cow. You can get to a certain point with spring calves, that if they do not give a certain yield they will be a loss. There is another point to which I should like to direct attention. It is evident from these experiments that a cow can be induced to yield from 80 to 100 gallons more milk if she calves in November instead of in spring.

I now come to the Scheme of Instruction in Butter-making. This scheme has been in operation since 1909-1, when one Committee adopted it. In 1911-12 it is in operation in 27 Counties, and 31 Instructors are employed. The scheme, briefly, consists in an Instructor giving daily lessons on dairying, accompanied by practical instruction in butter-making, to a class of pupils, who meet each day for a period of not less than two weeks. The Instructor visits the dairies at the homes of her pupils, and also other dairies throughout the county, and gives advice as required on all matters pertaining to dairying. These Instructors, in 1911, paid 6,526 visits to private dairies, gave 102 lectures, and conducted 5,282 classes in 360 centres, where courses of instruction were held, with an average attendance of eight.

TABLE showing for each of the Years 1902, 3, 4, 5, 6, 7, 8, 9, 10, 11, the Numbers of Milch Cows (including Heifers in Calf) in each County and Province in Ireland.

County and Province	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.
Armagh*	67,202	66,424	64,320	68,109	68,289	70,270	67,820	63,748	63,205	60,205
Armagh*	31,786	31,349	31,908	31,878	31,342	32,087	31,850	31,703	32,368	30,190
Carlow*	11,536	11,291	11,875	11,587	11,337	12,446	13,681	12,705	13,213	13,011
Cavan*	49,253	47,267	47,510	45,344	45,445	48,745	46,465	49,207	49,454	45,126
Clare*	38,164	37,268	37,311	37,135	37,494	38,569	39,183	38,759	39,806	40,230
Clare*	189,619	189,541	189,239	187,628	188,025	186,081	202,233	200,453	200,040	201,389
Donegal†	66,087	68,514	67,531	65,180	68,074	69,690	68,327	69,979	65,517	65,469
Down†	55,532	54,180	55,885	55,902	55,564	54,827	54,756	52,263	54,779	51,646
Dublin†	17,137	16,815	17,478	18,025	17,798	18,488	19,103	17,783	17,887	17,799
Fermanagh†	41,984	41,173	40,600	39,730	40,113	42,511	42,392	40,851	41,751	40,442
Galway*	47,184	47,965	47,240	47,973	48,342	50,006	52,438	51,323	51,701	52,504
Kerry*	124,188	111,432	113,502	111,731	113,253	113,020	117,732	114,839	117,998	119,184
Kildare*	12,305	12,412	13,302	12,535	12,700	14,145	16,238	16,100	14,914	17,185
Kilkenny*	39,123	39,236	39,343	38,834	39,442	41,040	42,438	42,694	42,739	42,273
King's*	14,846	16,477	17,128	16,928	17,709	18,908	19,690	20,195	21,244	21,256
Leitrim†	38,974	37,679	37,406	34,204	36,737	39,239	39,513	39,568	37,042	37,696
Limerick*	208,255	204,099	204,171	202,063	203,094	196,403	199,570	111,184	106,465	106,511
Londonderry†	41,013	41,739	41,231	41,994	43,031	42,490	45,736	38,454	37,335	37,767
Longford†	17,244	16,659	17,114	16,823	16,491	17,733	17,567	17,083	17,134	17,230
Louth*	16,446	15,262	16,409	16,284	16,488	18,774	19,590	11,215	11,369	11,806
Mayo*	40,049	39,756	39,453	39,489	38,423	41,163	42,577	40,513	41,333	40,525
Meath*	16,494	16,854	17,394	16,796	17,058	20,707	21,012	20,584	20,291	21,039
Monaghan*	21,947	22,045	22,551	21,961	21,456	22,322	24,073	23,538	23,458	23,741
Queen's*	20,128	20,371	20,565	20,145	20,288	23,217	23,728	23,067	23,828	24,517
Roscommon†	38,810	38,101	38,328	38,369	38,516	37,712	37,973	36,629	36,827	37,793
Sligo*	33,423	32,906	32,979	32,476	32,600	33,283	33,516	32,473	33,790	33,809
Tipperary*	90,942	91,220	92,173	92,547	92,129	93,971	96,594	98,249	97,311	96,213
Tyrone†	72,612	70,624	69,501	69,329	69,369	71,683	71,632	68,507	68,746	68,333
Waterford*	90,226	90,061	89,748	89,602	90,311	90,486	91,820	92,054	91,205	91,229
Westmeath*	18,222	18,222	18,221	18,221	18,221	17,743	17,728	18,773	18,743	19,128
Wexford*	34,106	35,780	36,028	35,383	35,697	38,483	39,560	38,634	38,268	37,650
Wick†	28,303	21,429	22,170	22,116	22,544	25,116	25,445	25,423	22,702	21,975
IRELAND	234,187	233,396	238,191	234,025	236,278	260,820	267,681	263,210	261,061	263,529
MUNSTER	606,274	594,652	594,165	596,154	596,235	612,411	620,554	627,168	625,801	625,493
ULSTER	400,837	428,300	422,576	443,244	450,443	466,290	461,763	443,213	446,144	443,650
CONNAUGHT	215,439	204,040	212,606	211,311	211,328	222,092	226,127	217,335	223,628	227,235
TOTAL	1,219,337	1,205,179	1,227,547	1,247,954	1,247,954	1,261,443	1,286,425	1,285,926	1,257,544	1,265,438

* Denotes increase.

† Denotes decrease.

‡ Denotes a fairly steady number.

There is only one point that I would like to refer to in connection with certain counties such as Clare, Galway, Mayo—that the number of milch cows has increased greatly. The ones that I have marked where there has been an increase are Armagh, Carlow, Clare, Cork, Galway, Kerry, Kildare, Kilkenny, King's County, Louth, Mayo, Meath, Queen's County, Roscommon, and others. There are four or five of these in which the increase has been considerable—for instance, Galway, Clare, Mayo and Kerry.

5523. The CHAIRMAN.—I am quite understood that the development of the Estates Commissioners' work, and of the Congested Districts Board work, in a large degree, be responsible for the increase there?—Yes, I think that certainly would have a direct effect, and I think also the increase is due to the fact that the price of store cattle has risen very considerably during the last few years. The profit then is made out of

5522. Lady EYRE.—I have personal experience that this instruction has done a great amount of good. Much better was the work in the world; and the Judges at the Shows tell me a wonderful improvement has taken place since dairy instructors were employed?—When the Instructors combine the visiting of the home dairy along with the teaching of the pupils at classes, it enables the pupils to put into operation what they had learned at the classes. I have prepared a table which, I think, might be of use, showing the number of acres in each county during the last ten years, and I put opposite each county where there is an increase a (+) sign, where there is a decrease a (−) sign, and in (†) where the number is steady. This is the table:—

producing stores has been abnormally high, except in 1911, and I think that has induced the people to keep more milch cows for breeding.

5524. The economic conditions and the division of the land and the increase in the number of horses?—Yes, I now come to the goat scheme. The Department have not lost sight of the question of the improvement of goats. During the last few years they have purchased, mainly in England and Scotland, twelve males and fourteen females, chiefly of the Anglo-Nubian and Pygmy breeds, with the object of finding out whether these breeds are suitable for this country, and also whether, when mated with the native breed, the cross is an improvement on the latter. It will take some time before the Department can pronounce upon the results of these experiments. Until quite recently it has not been possible for the Department to put into operation a scheme for the

improvement of goats, owing to the lack of public interest in this animal, and the difficulty of administration and organization. The Countess of Aberdeen has, however, in connection with the Women's National Health Association, taken a considerable interest in trying to procure goats for the families of labourers with the object of supplying them with milk. By means of this Association and the County Committee the Department hope that it may be possible to organize and administer a goat scheme on the following lines—

1. A society to be formed of persons interested in goats, with the object of stimulating interest amongst goat breeders and in improving the breed of goats.

2. Local associations to be established in rural districts where goats are kept, these to be organized chiefly through the Women's National Health Association.

3. The Department to purchase male goats of the best breeds, and sell them at a reduced price to selected applicants, who will take proper care of them, mate them with native goats, and keep a record of the progeny.

4. The Department to purchase a limited number of female goats, of improved breeds, and to sell at a slightly reduced price to selected persons, who will undertake to carry out experiments in the mating and breeding of goats of good milking qualities, in order to supply associations with well-bred male goats.

5. To encourage classes for goats at local shows, where such are held, and to establish goat shows in districts where there are no agricultural shows. The Department to assist by means of a small grant.

6. The local associations to arrange for the registration of goats by means of local inspectors, for the adjudication at shows, the keeping of records, etc.

Irish goats give milk for only five or six months in the year and breed at one season. Swiss goats, on the other hand, milk for a much longer period, and can be mated at all seasons; the advantage of crossing the former with the latter would probably be an extension of the milking period of the resulting female progeny, as compared with the Irish goat. At the same time a great deal could be done to improve the native goat, by selecting and registering the best milking animals and breeding from them, carefully preserving their female progeny, and mating these with a male from a good milking strain. Many Irish goats are good milkers, some of them giving up to six pints of milk per day for several months. They are also hardy, and need comparatively little care or hand-feeding. Foreign goats are much softer, require constant care and hand-feeding, and will not stand hardship or exposure in the same way as the Irish goat.

5325. Lady EVERARD.—Has the Department been able to procure any goats, are the ports open yet?—The ports are only open from Scotland and the North of England.

5326. The goats are not able to come as yet?—No.

5327. Mr. CARRUTHER.—They are mostly to be got in the districts that are closed?—Yes. Separated MILK.—Separated milk is not a well-balanced food. In the process of separation, nearly all the fat is removed from the milk, and although it contains all the other constituents, it is not by itself capable of properly nourishing young animals. If, however, it is used in conjunction with foods containing a fair percentage of fat, and given to animals not very young, it is an excellent food. The following table will show the analysis of different kinds of milk:—

	Cond.	Goat.	Swiss.	Separated	Butter-
				milk.	milk.
Water	87.50	86.30	89.85	90.50	90.80
Fat	3.50	4.50	.75	.10	1.00
Albuminoids	3.50	4.10	4.08	8.00	3.50
Sugar	4.75	6.20	4.50	5.50	4.00
Ash	.75	.80	.77	.80	.80
	100	100	100	100	100

The following foods are fairly rich in fat, and can be used profitably with separated milk for young animals:—

Lard	36 per cent. oil.
Lard cake meal	30 do.
Oilmeal	7 do.
Rice meal	7 do.
Oats	5 do.
Maize meal	5 do.

Experiments carried out by the Department over a period of eight years conclusively prove that calves, after they are a month old, can be as well and more economically reared on separated milk, in conjunction with foods which contain fat, than they can on whole milk. Experiments have also been carried out in the feeding of pigs with separated milk, and these experiments show that when pork realizes 48s. 3d. per cwt., separated milk is worth 2d. per gallon; and when pork is selling at 40s. it will return 1d. per gallon for separated milk. There has been as wide a series of experiments carried out in connection with separated milk by the Department as they ever conducted, and I am aware that it lasted at least for eight years.

5328. Mr. CAMPBELL.—And the whole goes to show that separated milk is an excellent food, provided you supply a certain amount of fat?—Yes.

5329. That it contains all the properties necessary for the formation of blood, flesh, and muscle?—Yes.

Prof. MERRIV.—Only the fat is removed.

5330. Mr. CAMPBELL.—And you do not agree with those who are depreciating separated milk as a food?—No.

Prof. MERRIV.—It has been shown that separated milk, plus lard, is as good a food as whole milk, and, of course, more economical.

5331. Mr. O'BRIEN.—You do not mention cod liver oil as an addition to the separated milk?—No. Cod liver oil can be used, but it depends entirely on the price. In the first stages of the experiments carried out by the Department it was used, but the price became prohibitive, and we ceased to use it.

5332. Mr. CAMPBELL.—And there was great difficulty in procuring pure cod liver oil?—Yes. I now come to the question of the milk supply for labourers, etc. There is no doubt that in many districts labourers have a difficulty in procuring a constant supply of milk. This scarcity is particularly felt in grazing districts where dairying is not general; and to a lesser degree in districts where dairying is general; and to the least extent where dairying, especially winter dairying, is carried on. Throughout the greater part of Ireland milk is scarce during the months of December, January, February, and the beginning of March; and even small farmers, who own two or three cows, are frequently without milk during these months. The action of cottagers by Rural District Councils has, I consider, made it more difficult in many districts for the labourer to procure a regular supply of milk. Farm labourers might be described as belonging to two classes: those who are permanently employed by the same farmer from year to year, and those who are employed for short periods only, or by the week. In cases where the labourer is regularly employed, the farmer usually takes a paternal interest in his welfare. As a rule, when occupying a cottage belonging to the farmer, the labourer receives his wages partly in cash and partly in kind. A small quantity of milk is frequently included as a perquisite. The farmer is prepared to sell him milk, or he is, in some instances, allowed the grass of a cow. The labourer living in a Rural District Council cottage, however, often finds it difficult to procure a supply of milk. He may be constantly employed by the one farmer, but as he is usually free to work for whom he pleases, and is frequently only employed temporarily by different farmers, there is no one farmer on whom he can depend for a supply of milk. In a few counties, viz., Tipperary, Limerick and Sligo, a number of creamery proprietors have made arrangements to supply milk to labourers if they will come for it regularly, take a constant supply, and pay in cash. Many farmers are prepared to act similarly in other localities, but the labourers are not always willing to comply with these conditions. Where creameries are established it is usually difficult to get buttermilk, but separated milk can be procured at from 1d. to 1½d. per gallon. On the other hand, where home dairying is carried on, and whole milk is obtained,

there is a good supply of buttermilk and a considerable demand exists for this product, at prices varying from 2d to 4d. per gallon. In many of the grass districts labourers (under which heading I include herds, etc.) are allowed to keep a cow, the grazing of which is given as a perquisite. Through the County Agricultural Inspectors and Butler Inspectors I have made inquiries as to where there is a scarcity of milk, etc., in their respective counties. Briefly, the information supplied may be summarized as follows:—

1. Where there is little dairying, and comparatively little tillage, milk is extremely scarce from November to April in the grazing districts, especially in such counties as Meath, Kildare, Carlow, Westmeath, and parts of Roscommon.

2. In counties where the holdings are small, and farmers keep from one to three cows, there is very little milk during the winter and spring months. This applies to such counties as Cavan, Leitrim, parts of Monaghan, and the congested areas.

3. In the grass dairying districts in Cork and Limerick, where, as a rule, the cows all calve in the spring, there is very little milk during December, January, and February.

4. In some of the grazing districts farmers have reduced the number of their cows, because of the difficulty they have in getting their servants to milk, and also because the grazing of store cattle has in later years (with the exception of 1911) paid well.

5. In some districts farmers have refused to sell milk to labourers owing to the Dairies, Cowsheds and Milkshops Order.

5533. Mr. WILSON.—That is within the definite knowledge of the Department?—Yes.

5534. Mr. O'BRIEN.—Obtained from their instructions?—Yes.

5535. The CHAIRMAN.—Which of the creameries sell separated milk?—I cannot give a definite reply; in those districts mentioned they do. There are a considerable number of instances where they sell separated milk to labouring men, but I cannot say generally that that is the case.

5536. Because it has been represented to the Commission that one of the reasons for sending the milk to the creamery is the return of the separated milk, and if the separated milk is regarded as such a prime necessity to the farmer, where would the separated milk for sale come from. It has been represented to the Commission already that the farmers set considerable value on the separated milk?—No doubt they do, and if they have calves or pigs they are depending to a very great extent on the separated milk as a part of the food, but I do not wish to say that the farmers would in all cases want back the full quantity. They might be willing to spare a few gallons of separated milk.

5537. Mr. O'BRIEN.—Do you mean to say that they would allow the creamery to retain it?—Not unless there is an arrangement.

5538. In the case of co-operative creameries, which only buy for the better lot, would the people buy the separated milk from the creamery and not from farmers?—I cannot say, but the Department has information that in a certain number of districts separated milk can be bought at a penny a gallon from creameries.

5539. In County Limerick, where there are some forty co-operative creameries, there are a large number of proprietary creameries, and a good many of these still buy the whole milk, and they would sell the separated milk, so that in a County like Limerick the Department's Inspectors might say that the milk was bought from the creamery without stating whether the creamery was co-operative or proprietary?—That is exactly what did happen. The Inspectors did not state whether the creameries were co-operative or proprietary.

5540. Mr. WILSON.—We had evidence regarding the refusal of some creameries to sell milk. The farmers' committee refuse to allow milk to be sold from certain creameries. Have you ever come across a case like that?—I know of no such case. The Department have evidence that in three counties a good many creameries are willing to sell milk to labourers living in the vicinity of the creamery.

5541. The witness who gave evidence to the effect that the farmers' committee objected to the sale of milk through the creameries was not able to suggest

the reason yesterday, and I was curious to know whether you could suggest a reason?—I have no information of that sort.

5542. At any rate, there is nothing in the creamery principle, either co-operative or proprietary, to prevent the separated or whole milk from being available to the neighbourhood; it is already being sold in that way in many instances?—Is so. Every person who supplies milk to a creamery comes under the Dairies and Milkshops Order as a purveyor. Those who do not—those who make butter at home—do not come under the Order, but if they supply in small quantities they come under the Order. The difficulty of supplying labourers with milk might be remedied in one or more of the following ways:—

1. Arranging with farmers in certain districts to sell milk to labourers at a fixed price, on condition that the labourers come or send regularly for the milk, take a constant supply, and pay in cash. To this plan, however, I recognize that there are several objections. The farmer objects to having the wives and children of labourers coming to his house at all hours for supplies, with the consequent disturbance of his domestic arrangements. A still greater obstacle in the respect is the fact that the sale of milk, no matter how small the quantity, would at once bring the farmer within the scope of the Dairies, Cowsheds and Milkshops Order. He would object to be required to submit to inspection by the officers of the local authorities, and to comply with the numerous regulations of the Order, which might possibly call for extensive alterations, etc., to his farm offices. Of course, farmers who supply milk to a creamery are included under the Order as purveyors of milk, so the foregoing objection would be raised only by those farmers who carry on home dairying.

2. It might not be difficult to arrange for an extension of the system by which creameries supply milk to labourers, as is already being done in parts of Counties Tipperary, Limerick and Kilkenny.

5543. The CHAIRMAN.—Is there any definite plan whereby that is done?—No. I think it is an arrangement come to with the creameries to supply these people.

5544. Is it universally practised?—Well, I think where one creamery started the others followed, either in the same district or in the adjoining district, but it is not universal even in the counties I have mentioned. It seems to be confined to certain districts, so far as I can obtain information.

5545. One reason why I was anxious to know this is—if it was universal in one or two of these counties the difficulty with regard to the milk supply must be considerably diminished in these places, and unless the creameries were not working continuously in the winter, as well as in the summer, there would seem to be very little need for the care or attention of the Commission?—Of course, there is a great difficulty in creameries supplying milk to labourers over a wide area. It is easy to supply labourers living half a mile away from the creamery, but when they are living four or five miles away you cannot expect the labourers to send there for the milk.

5546. Mr. CAMPBELL.—And it is only where in the vicinity of the creamery there is a village population that it is a perfectly practicable scheme?—Yes.

Prof. MURRAY.—And there must be a consistency of demand.

5547. Mr. O'BRIEN.—Many of these labourers keep a goat, especially where they have Ulster cottages, and just at the time when the butter would be most ready to sell, having a large supply of milk, that is the time when the labourer says, "I do not want your milk; I will not take any milk from you at this price, as I do not want it," and he will try to get it in the winter when his goat is dry and he wants milk again?—That is certainly the case. The Irish goats will be giving milk probably from the month of April up to August—as a rule, five months' milking is what you can calculate on—and during that time most farmers have an abundance of milk, and I think that the difficulty is to be got over by getting goats that will milk nine or ten months, and this can only be done by the introduction of foreign breeds. The difficulty about upsetting domestic arrangements is a farmer's house could be overcome if the labourers would come to his place for their milk about the same time, but if they come at different hours the annoyance of attending to them would be so great that in the majority of households the farmers would refuse to supply the milk.

Mr. O'BRIEN.—I know that in any one case when the labourers and the neighbours want milk they come when the cows are milking, and I know that we have had a considerable difficulty, because all these wives meet together, and they have such bitter tongues and give each other a good deal of abuse. The wives quarrel and go home and nag at their husbands until they get them into the quagmire. I have known a case of a labourer going for another with a knife, and a second, for a man with a hotbed, owing to the stovies earned by the women. They come at the time that is very convenient to me, but they cannot stop abusing each other.

5548. Mr. WILSON.—You say that a still greater obstacle is the fact that the sale of milk, no matter how small the quantity, would at once bring the farmer within the scope of the Dairies, Cowsheds and Milk-shops Order?—Yes.

5549. What objection would you see to including the farmer who carries on home dairying in the Order?—Personally, I do not see any reason why he should not be included.

5550. Mr. CHAMBERLAIN.—As a butter-maker?—Yes.

5551. But do you see any great objection to their being included as sellers of milk to labourers?—In the English Order farmers are allowed to supply labourers or their own neighbours, and are exempt provided they are not regular purveyors of milk.

5552. The CHAIRMAN.—This exemption obviously indicates that the difficulty was also felt there?—Yes.

5553. And that it led to a restriction of the supply of milk?—Yes.

5554. Mr. CHAMBERLAIN.—From the point of view of pure milk, is it not just as important that the farmer who keeps a couple of cows for his labourers should be inspected?—Yes, quite as important.

5555. But from the point of view of supplying the labourer with milk as a food, does the Order go too far in asking the farmer to have the same facilities for milk production that the man has who supplies milk to a crosby or city—do you follow my point?—Not quite.

5556. You see, a farmer who is supplying milk to a city has, of course, to set up a proper establishment, but you cannot expect a farmer who is a feeder to have the same facilities for two or three cows which are only used for the supplying of his labourers?—That is quite true, but the Order is not aimed out to the letter of the law. It is left to the official to decide as to whether the buildings are sanitary and if there is proper air space.

5557. But there are no regulations laid down for the inspectors?—No, it is left entirely to their own judgment.

5558. And some of these are strict and some are very lax?—That may happen. One inspector may have more stringent regulations than another. That is the great difficulty in the carrying out of the Order.

5559. Lady EVERARD.—You will recollect, Mr. Chairman, that I put that question to one of our expert witnesses, Mr. Smith, of the Local Government Board, I think it was. I asked him that question, whether a farmer supplying milk to his own labourers would come under the scope of the Order, and he said the point had never been raised, that it never had been brought out in Court. I asked him what his opinion was and he said, "personally, I think he ought to be able to supply his labourers."

Miss MCNEILL.—Apparently there was no case raised. The CHAIRMAN.—In my district there are people selling milk who do not register, and it is well-known to the officer in the district that they sell milk. It is also known to others holding administrative positions in the County, but they say, "if we interfere we will cut off the milk supply."

Prof. MERRIM.—And to carry it to the logical conclusion, any person should be under the Order.

Mr. CHAMBERLAIN.—Yes, and rightly so, if it is a matter of disease, but if it is a question of producing the milk under hygienic conditions it is a very different matter; there should be high-class conditions where there are a large number of cows.

Prof. MERRIM.—Do you not think that the condition of one cow ought to be equivalent to that of fifty?

Mr. CHAMBERLAIN.—In the case of fifty you require more expensive appliances.

Prof. MERRIM.—The conditions under which a single cow is kept should be as good as the conditions under which fifty are kept.

Witness.—In England there is a species disease in the Act exempting farmers who supply their own labourers or neighbours with milk, and I may say also, that although the Local Government Board never have got it into effect, yet there are a number of farmers at the present moment in Ireland who have refused to supply labourers because they felt that they would come under the Order.

5560. Mr. WILSON.—From the point of view of inducing tuberculosis, it is obvious that in these small farmers' premises there might be found a certain proportion of cows suffering from clinical tuberculosis?—Will you leave that point over until I come to deal with the question of tuberculosis?

Mr. WILSON.—Certainly.

5561. Prof. MERRIM.—How can we get over this difficulty of farmers refusing to supply their labourers?—Not to include them as purveyors of milk, and state so specifically, as in the case of Birmingham and other English cities.

5562. Mr. CHAMBERLAIN.—There would be a great difficulty in drawing the line, because people in the city might be your neighbours?—There has been no difficulty in England.

5563. The CHAIRMAN.—Further conditions could be laid down with regard to the number of cows kept.

Mr. CHAMBERLAIN.—Something of that kind, as a matter of fact, will have to be done. I myself met a gentleman in County Dublin last Sunday. He keeps an establishment and a number of cows. He said practically to give away his separated milk, and he said he would not take any further risk about supplying milk owing to the Order.

Lady EVERARD.—I asked some factory girls how they got the milk, and nearly everyone of them told me that in consequence of this Order farmers would not give them any milk. In one family of five they said they could not get any milk, and that the cow had gone dry. I asked the woman of the house what she gave the children, and she said comfort made with water.

Witness.—In certain districts labourers might co-operate and take a field of grass for the season, on which they could graze their cows in common, as it would not be possible for them to keep a cow on their half-acre or acre plots. Loans for the purchase of cows might be given through credit societies, if the labourers would be prepared to give joint security. It would, however, be necessary to have a system of insurance in such cases. I may say that a scheme similar to this is in actual operation at the village of Ross Mills, in County Tyrone, which consists of 250 houses, with a population of 1,300. The village belongs to the owners of a linen spinning mill, who have erected byes for 37 cows owned by their labourers. The labourers are either employed in the mill or on the farm attached to the mill. The animals are grazed on pasture in common, the owners of the cows paying 2s. 6d. per week for the summer grass. Those who own cows supply their neighbours with milk at 2d. per quart, summer and winter. Of course, the number of cows mentioned do not give sufficient milk to supply all the households. Farmers in the neighbourhood also supply the village with milk. Quite recently I was told that the owners of this mill were prepared to put up another range of cow houses.

5564. The CHAIRMAN.—You have these a very restricted population?—Yes.

5565. And the difficulty of dealing with small districts would be much greater from that point of view?—In Ireland there are a number of small industries in different places where there are a number of houses built together, and it would be to their interest if they could get cows, because farmers, as a rule, will not supply them. If there was a number of houses like this it would be possible for labourers to have a field or two to graze cows in common, and the difficulty would be got over.

5566. Lady EVERARD.—Do these people in Ross Mills feed in winter?—In this district there is no difficulty. They can buy hay and straw. The owners of the cows give the manure that is produced from the animals to farmers in order to manure the land, and a small amount is given to defray the cost of labour. In that way the cattle are provided with food.

5567. Mr. CHAMBERLAIN.—Cows will milk in winter without roots?—Yes.

Mr. James Scott Gourlay.—25th January, 1912.

5508. *Cows* are not an absolute necessity?—No, but the cows will milk much better on roots or something succulent.

5509. *Lady BERNARD*.—Have you heard of Father Barry's scheme?—I only saw it mentioned in the newspapers, and the report was so brief that it was difficult to judge from it what the scheme really meant.

5510. *The CURRIVALS*.—It is not possible for general application. It is only possible where land is being divided, and where it is under the control of the Estates Commissioners for the purpose of distribution?—I mentioned the scheme in *Ston Mills* as being applicable to districts similar to the one in which the scheme is in actual operation.

5511. *Mr. O'BRYEN*.—How did the people in that scheme manage about the milking of the cows?—The owners milked the cows. The cows are brought into the house to be milked in the North of Ireland.

5512. *The owners* of these cows did not club together to get one person to milk a number of cows?—No, they are quite independent of one another in everything; each has a separate herd.

5513. *Sir STEWART WOOLHOUSE*.—Has every family a cow each?—No, there are twenty-seven cows. But the number of cows is steadily increasing.

5514. *Are there a number of families supplied by one cow?*—That is obvious, I think. A family will have more milk than they require, and will sell the balance to their neighbours. One cow would supply three or four families.

5515. *Mr. CURRIVALS*.—Arising out of the paragraph in which you suggest that the labourers should co-operate and take a field of grass, certain proposals have come before us. One is that in the case of small towns the governing authority might take a farm and carry on dairying and supply the inhabitants with milk. It has also been suggested to us that the local authority should dispose with the taking of the farm, but that they might purchase milk from farmers in the neighbourhood and sell it through a depot under their control. There was a further suggestion that this might be left to voluntary effort—that is, getting the milk in from the farmers and selling it to the inhabitants of the town or village?—You mean the farmers doing that?

5516. In the first two cases it has been suggested that the local authority should do it, and the third suggestion is that it should be done by a voluntary body?—Yes.

5517. But only in one case is it suggested that the public body should farm. I should like your views with regard to these proposals. The first is with regard to the local authority taking a farm and supplying milk to the townspeople—you might call it municipal farming. Would you think that an undertaking like that would be suitable for Irish towns and villages?—The great difficulty I see in connection with that would be the question of management, and apparently the expense would have to be borne by the rates, and I think the cost of administration would be considerable.

5518. Do you think it would be self-supporting?—My experience of farming earned out by any such body, not only in Ireland, but throughout the British Isles, is that commercially there is no profit.

5519. Is that for want of any one individual being responsible?—To a great extent. I think that in all probability the body concerned has a very slight knowledge of the business, and even if they had considerable knowledge the management is left to a manager. The members of the body could not give their time to looking after the undertaking. The whole thing is left to the manager, and the success of the scheme depends to a great extent on that one person. I would prefer to make an arrangement with the farmers, and distribute the milk around, or have it distributed from a depot; but looking at it from a commercial point of view, I am perfectly certain that to get the farmers to supply would be more satisfactory than for a corporate body to take charge of the undertaking.

5520. How would you regard a voluntary body?—There is a difficulty there. The success of the scheme will largely depend on the activities or exertions of one or two members. If they are removed from the district the probability is that the whole thing will collapse. That is what I fear in regard to the voluntary body.

5521. Of these three schemes, would you be most inclined to favour the last?—I would be most inclined

to favour the voluntary body, because it would be done in that case for love of the work. The persons taking up that would be enthusiastic, I imagine, in connection with it, and would be more likely to make it a success, but in the case of those people removing from the district there would be a difficulty.

5522. *The CURRIVALS*.—In all probability the people who would take up this scheme, with the desire of doing good to the neighbourhood, would be generally persons of means and leisure, and they would not always be at home, and the result would be that during certain periods of absence things would become disorganised, and the supervision not so keen as usual, and difficulties would arise?—Perhaps I do not make myself clear about the question of individuals in connection with voluntary associations or individuals in connection with corporate bodies. In the case of a voluntary body you will have one or two individuals enthusiastic about the thing. These individuals may have leisure and devote a great deal of their time to the matter. In the case of a corporate body it is quite different, and it is not possible for individuals in connection with such a body to devote the same amount of attention to the scheme as would be the case of individuals in a voluntary scheme.

5523. *Mr. CURRIVALS*.—I did not mean that the voluntary body was going to farm, but to act as a buyer and distributor of milk?—I understood that.

5524. *Mr. WILSON*.—Did you also understand that the expression "voluntary body" includes, for example, a co-operative society, or a branch of the Women's National Health Association, or any voluntary society?—Yes, I took it in the broad sense.

5525. *Mr. CURRIVALS*.—A voluntary society crowded in a district solely for supplying that neighbourhood with milk would be a different thing, to my mind, to a voluntary association that would be a branch of a larger and more permanent body?—That is true.

5526. There would be a distinction there?—Yes.

5527. And if it was a branch of a body likely to continue in existence some of your objections to the voluntary scheme would disappear?—That is so. I think, however, that a great deal could be done by organisation, and getting the farmers to supply the milk. I am perfectly sure that in the neighbourhood of a small town or village, that if a farmer could see his way to get a reasonable price and a continuous demand there would be no difficulty in getting the milk.

5528. *Prof. MERRIV*.—It is the constant demand that is at the bottom of the whole difficulty?—Yes.

5529. *Mr. CURRIVALS*.—Of course, a continuous demand, as we were shown by Dr. Boedicker, can be created.

5530. *Mr. O'BRYEN*.—This evidence was in reference to a small town.—Bite.

5531. *WILSON*.—I have already dealt with the question of post-keeping, and I now go to "Tuberculosis in cattle." In the year 1899 the Cheshire Technical Instruction Committee, with which body I was then engaged, decided to carry out experiments in the testing of cattle for tuberculosis. In that year interest in the question was intensified by the Orders of the Local Government Board, and by the action of corporations and sanitary authorities in asking Parliament for additional powers to enable them to deal more thoroughly with the milk supplied to their areas, and the inspection of the cattle yielding that milk. This action of the authorities was due to the opinion of medical men that milk from tuberculous cows was largely responsible for the increased mortality in children, and also that from 50 to 60 per cent. of the dairy stock of the country were affected by tuberculosis. The objects of the experiments instigated by the Cheshire Technical Committee were—

1. To test the reliability of tuberculosis as a method of diagnosing tuberculosis in cattle.
2. To examine the milk of animals that reacted to the test in order to ascertain what percentage of these animals gave milk containing tubercle bacilli.
3. To find out whether, by the external appearance and by inspection of the udder, it is possible to determine if the udder is tuberculous.
4. To ascertain the direct loss that farmers would have to incur in cleaning their herds of all animals affected by this disease. The Technical Committee had in the County of Cheshire two institutes, with farms attached, one a dairy school for girls, and the other

an agricultural school for boys. Each school had a herd of dairy cattle, one herd amounted of 54 and the other of 15 cows. The Committee decided to test the herds and to slaughter all animals which reacted to the test. The results of the tests were as follows:—

	At Dairy School.	At Agl. School.	Total.
Number of animals tested	54	17	71
Number which did not react	37	14	50
Number which reacted	14	3	17
Number of doubtful cases	3	1	4

Percentage of tuberculous animals	30	24	28
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The doubtful animals were again tested in a month after the first test, and three out of four reacted. The animals which reacted were all slaughtered, and in each case the disease was quite easily detected. Samples of the milk from all the animals which reacted and were given milk were sent for microscopic examination to Dr. Delépine, Professor of Pathology and Bacteriology in the University, Manchester. In addition to examining the milk microscopically for tubercle bacilli, Dr. Delépine also inoculated guinea-pigs with each cow's milk. He found tubercle in one cow only. The animals inoculated with this cow's milk died in five days.

1920. Prof. MURRAY.—But they would not die from tuberculosis—I only know that it was stated in the report that they died in five days.

1921. No guinea-pig would develop tuberculosis in five days, and if they died in five days they died from something else.—As a result of this investigation it was found that in two herds comprising a total of 71 cattle, one cow's milk contained tubercle bacilli—a percentage of 1.3. The udders of all the reacting cows were carefully examined by the Chief Veterinary Inspector who carried out the experiment, and in one case he found an indurated udder, which he believed to be tuberculous; all the others, so far as manipulation could determine, were entirely free. The post-mortem examination of the indurated udder showed no appearance of tuberculosis. It was, however, found to contain two large hyaline cysts. The udder of the cow which gave tuberculous milk showed no sign of disease, as far as could be determined by manipulation. In the post-mortem examination no tuberculous lesions could be discovered by means of the naked eye, but when the udder was submitted to Dr. Delépine for microscopic examination, he found distinct evidence of the disease. These experiments showed that:—

(1) The tuberculin test was reliable in 98 per cent. of cases. In the incubation period of the disease, and when it is extensively generalized, the tuberculin test was not so accurate. (2) Manipulation of the udder was not to be relied upon in detecting tuberculous udders. (3) It was undoubtedly wrong to suppose that the milk from a cow having no appearance of a diseased udder is perfectly free from tubercle bacilli. (4) The only certain way of proving that the milk is free from tubercle bacilli was to have it bacteriologically examined, along with the acidification test. The animals purchased for the two herds after this experiment were brought subject to their passing the tuberculin test, and during the year 1922-1923 thirty-one animals were tested, of which eight reacted, a percentage of twenty-six. The carcasses of all the animals slaughtered, although affected with tuberculosis, were declared fit for human food, after having been examined by three experts. The total loss on twenty animals was £140, or an average loss of 47 per head. Of course, in this case many of the animals were in full milk, and were thin, and realised very small prices. If farmers had sufficient housing accommodation to isolate affected animals, and if those animals not in the last stage of the disease were gradually fattened and disposed of, the loss in culling herd would be comparatively small.

These experiments were carried out eleven or twelve years ago, and there were also other experiments carried out by Dr. Delépine and Dr. Niven, who have

probably conducted more experiments in connection with tuberculosis in the udder of cows than any other authorities in the British Isles. There have also been experiments carried out by the Royal Commission on Tuberculosis. I think that speaking generally the idea prevails that by examining the udder of a cow or by manipulation you can tell whether that udder is diseased or not. These experiments show pretty clearly that that is not the case. Dr. Niven, Medical Officer of Health to the city of Manchester, sent me some papers which he had read before certain bodies. In one paper which he read before the British Congress on Tuberculosis he states:—"Out of ten samples of milk taken from indurated udders, Dr. Delépine found by autographic examination and the acidification test that only five were tuberculous. From this and other observations it was concluded that veterinary observations do not suffice alone to determine whether an udder is tuberculous, and our subsequent experience amply confirms this conclusion." That the milk might be infected by the presence in the cow of a generalized tuberculosis without the udder being affected. This may occur as a pathological entity, but even then infection of the udder would have started. On the other hand, it does not follow that an udder which had been infected by tuberculosis to an extent sufficient to yield an infected mixed milk shall present any lesions to clinical examination."

"I am prepared to accept the conclusion that the udder may be in a pathological condition, not to be discovered merely by manipulation, but quite adequate to produce in the milk large numbers of bacilli. As a result of following up 47 tuberculous milks he (the V.S.) has found udders which were proved, by subsequent examination of the milk, to be tuberculous in thirty-one instances. In fifteen instances tuberculous udders have not been found. In one instance the result has not yet been determined." Dr. Delépine states that "In all cases in which tubercle bacilli had been discovered in the milk the mammary lymphatic gland was found tuberculous, and in all cases but one I have found some tuberculous lesion of the mammary gland itself." The above statement is based on the examination of about forty tuberculous udders. On the other hand, some twenty udders which had not yet yielded tuberculous milk, although the cows were tuberculous, have been examined, and in no case was there any evidence of tuberculous lesions."

The Royal Commission on Tuberculosis carried out an experiment with six cows which were all affected with tuberculosis. Three of these animals showed decided clinical signs of the disease. The remaining three were apparently healthy animals, but gave positive reactions when the tuberculin test was applied. In the milk of the three cows showing clinical signs of the disease, tubercle bacilli were found, but none in the milk of the other three cows. None of the cows showed disease of the udder during life, and although the udders were carefully examined after the animals were slaughtered, no tuberculous was found except in one case in which a quarter of the udder showed four small nodules, which could not possibly have been detected during life. These three sets of experiments seem to prove conclusively that to depend upon clinical examination of the udder would, in many instances, lead a person astray.

1922. Mr. CONFELL.—If I understand aright, the veterinary surgeon who certified that the milk is comparatively free from tuberculosis because he found nothing wrong by manipulation, might be only deserving the farmer himself?—He may be quite wrong.

1923. That is rather serious, because if there was a thing that we would hope for it would be this—that we could pick upon the obviously tuberculous cow, and clear her, at any rate, out of the herd, and in that way go a long way towards clearing tuberculosis out of the herd.—You cannot do that by clinical examination.

1924. The Chairman.—This would weaken the claim put forward by most people, that the inspector should be a professional man.—If you have a veterinary surgeon who is constantly examining cows for indurated udders, and that he has nothing to do in conjunction with him a bacteriologist who will examine the milk, the veterinary surgeon will in time and through experience become a great deal more proficient in the examination of the udder than the man who only occasionally makes an examination.

5293. Mr. CAMPBELL.—You know what is called a "pincer"?—Yes.

5294. Might an animal be mistaken for a "pincer" when it was emancipated from some other cause than tuberculosis?—Yes, it is possible that an animal might be a "pincer" and be free from tuberculosis.

5295. Would you undertake yourself, as a farmer, to pick out of your herd clinically, openly palpably, affected animals?—I will tell you what I did try. I saw two herds slaughtered in Manchester. Before they were slaughtered I said—"I will try myself and pick out those animals suffering from tuberculosis and those that are not." To my amusement, the animals that I thought had tuberculosis were free from it, and the animals that I thought were the healthy cows were the worst reactors. I had that experience myself in those two herds.

5296. Prof. MERRILL.—Which shows how necessary it is to have professional men?—There was no bad one in those two herds, and that was proved afterwards, because the carcasses were not condemned.

5297. Take it that a farmer has got a "pincer," what is the first thing he thinks of?—Tuberculosis. And in most cases he is correct. The cows that are emancipated from other diseases than tuberculosis are rare.

5298. Mr. CAMPBELL.—Have you seen before after the first calf come down to such a condition that you might think of "piners"?—Yes, you might think that the animal was dying from tuberculosis, and in twelve months you would not know the same animal, she would be so improved. In the Report of the International Commission on Bovine Tuberculosis, appointed by the American Veterinary Medical Association, it was stated that by clinical examination you might easily mistake an animal suffering from "Johnes" disease to be affected with tuberculosis.

5299. Mr. WILSON.—I am sceptical on this subject, and I want to ask just one or two questions on the point. You certainly were not prepared to dispute the fact that there is a proportion of obviously tuberculous animals that no one could mistake?—I would say that there are a few.

5300. I am speaking of open, serious tuberculous animals with running noses and coughing, and obviously diseased?—Yes.

5301. The estimate that was put before us of animals of this type in Ireland was 3,000 or 4,000. No one denies that these animals are a tremendous danger to the milk supply, and one of our expert witnesses said that if these animals could be eliminated the most dangerous element in the trade would be taken out?—I would only partly agree with him.

5302. That was his evidence at any rate. We will now refer to the evidence you quoted from. You notice that the words "may" or "might" are used, but very few facts are given?—That is Dr. Niven's statement I quoted. It is typical of a whole number of conclusions that experts arrive at. They say the "udder" might be wrong or "may" be wrong, and that it "may" affect the milk, or that the milk "may" be wrong without the udder being visibly wrong. In Belfast lately they have been going in for bacteriological experiments, to see how much of the ordinary milk on sale is affected by tuberculosis, and so far as my making has gone, they have not yet discovered tuberculous in Belfast market milk. I will not say that this is so for 1911, for the figures are not out, but I am certain that it is so for the earlier years, and I think I am right in saying for the later years.

5303. Prof. MERRILL.—You would reject all cows with diseased udders from the milk supply?—No, I would not. My point is that unless you can ascertain by bacteriological examination that the milk contains tubercle bacilli, you are not justified in rejecting all cows that have apparently something wrong with the udder.

5304. Mr. WILSON.—You would go so far as this—that the first step in the process of dealing with tuberculous is to have a system analogous to the Belfast system?—Yes.

5305. And if you get a tuberculous sample, follow it up until you get to the byre?—Yes.

5306. And find out which cow in the byre gave the tubercular milk and cut her throat?—That is sound. That is exactly the Manchester method.

5307. I was going to come to that. Dr. Delépine has designed that method as the way of conducting tuberculosis?—Yes.

5308. And he has not gone in for the other system

of condemning the cows until he has discovered the tubercular bacilli in the milk?—That is so.

5309. There are two opposite ways of attacking the problem?—Yes.

5310. In other words, the tuberculin test is a method of discovering cows which may be suspected of supplying tuberculous milk, but is a very expensive process if applied on a national scale?—Dr. Delépine's method is this—When he discovers a herd from which milk comes containing tubercle bacilli, the veterinary surgeon examines and selects a number of the cows which he thinks are affected, and sends the samples of milk to Dr. Delépine to test, so that he may decide which particular animal is affected. If he cannot do so he sends back the veterinary surgeon to make another examination. When they find the animal that gives the tuberculous milk they try to get the owners to destroy it.

5311. Would not you make the destruction compulsory once you get to a cow of that kind?—I would have to hesitate in doing so.

5312. Prof. MERRILL.—There are other things that might be screened by the diseased udder besides the tubercle bacilli that might not be wholesome to drink—cows suffering from abscesses and arthritis?—Yes.

5313. Consequently, do you not think that any animal whose udder is affected should be weeded out of the milking supply?—It depends upon what you mean by "affected."

5314. That you find affected as the result of clinical examination?—If you have a cow that has signs of induration, I do not consider that you would be justified in condemning her. If you have a cow, and it is apparent to anyone that she has tuberculosis, I have no doubt that you would be justified then in weeding her out or destroying her.

5315. I do not agree with you, Mr. Goodson, on the question of diseased udders. I think that it would be wise to condemn all udders that are notoriously diseased, and that cows with such udders should be taken from the herd supplying the milk, because, as you have said in your evidence, it is not always easy to discover that the udder is diseased, but it is difficult to say until you make an examination what the udder is suffering from. I would like the Commission to remember that there are other things besides tubercle that may be present in the milk, and that would be injurious—pus, for instance. I would like to ask you, Mr. Goodson, if you are aware of the Ostering method?—Yes, I am aware of the three methods of stamping out tuberculosis from cattle—the Bang, Ostering, and Delépine. I quite agree with what Professor Merrett has said, but I would not go so far as to condemn a cow which had, perhaps, the appearance of little nodules, which might not be tuberculous at all, but ordinary watery cysts.

5316. Mr. WILSON.—If you suspect a cow of being tuberculous, why not apply the test then?—You would get over a great many of the difficulties by using the tuberculin test, because you could definitely ascertain which animals had tuberculosis, and if you had the milk analysed you could arrive at a definite conclusion.

5317. Prof. MERRILL.—That is the rational manner of examining cattle—first, the tuberculin test. If the cows do not react there is manifestly no tuberculosis of the udder or tubercular milk secreted. If the animal reacts it is necessary to see if she is giving tubercle bacilli in her milk, because we know that the udder may be sound to all intents and purposes and yet secrete the tubercle bacilli.

Mr. O'BRIEN.—And she may give the tubercle bacilli for a short period and not give it again for some time.

Prof. MERRILL.—They are not always present in every "meal." I would like Mr. Goodson to put out of his head those little notions people talk about. They always suggest tuberculosis to me?—That is the term used by the veterinary surgeons. They condemn cows because parts of the udder become hardened, and when the animal is killed, it is frequently found that she did not suffer from tuberculosis.

5318. Mr. WILSON.—The normal method which is recommended for solving this problem is to go to every byre and apply the tuberculin test, to isolate the reacting cows and fatten them for beef. The opposite proposition is to start with the Medical Officer of Health examining the milk for tubercle and trace it back to the district, byre and cow, and if there is an obviously clinical cow have the tuberculin test applied. They are, I believe, adopting this system in Belfast.

Witness.—It is the Manchester system.

5021. Mr. CHAMBERLAIN.—The farmer should not be subjected to both tests. If one is thorough it covers the other.

Prof. MERRILL.—A examination of both methods would be better. A person who is going to supply milk to a municipality should inform the Medical Officer of Health of the fact, and then the Veterinary Surgeon could examine his herd and give him a certificate. When the milk is received in the city it is examined, and if at the same time that cow has developed tuberculosis the authorities can trace up and fetch it out.

Witness.—Of course, if the owners of the cows were to have them tested that would get over the difficulty and the Dairymen system of having checks on the supply.

5022. Mr. CHAMBERLAIN.—Reference was made to acres in Ireland. Of course, you mean that the milk of such cows should not be put into the public supply?—No, while the cow was ill. The tuberculin test, when applied to a dairy herd greatly assists in determining which cows are tuberculous, but does not indicate which animals are giving milk containing the tubercle bacilli. This can only be done satisfactorily by a bacteriological examination of the milk in conjunction with the inoculation test. The application of the tuberculin test, the isolation of infected animals, and the disinfection of the building, are not sufficient in themselves to clear a herd of tuberculous. The healthy cattle which do not react should be kept in a thoroughly clean, sunny, well lighted and well ventilated cowhouse, because if the building is dark, badly ventilated, and the cubic air space per animal is small, the germs present in the building are likely under these conditions to affect the healthy cows and cause a number of them to react if tested again in six months. Without proper housing accommodation for the healthy animals in a herd, and a separate building for isolating those animals which are tuberculous, there is very little to be gained by using the tuberculin test. The difficulties of stamping out tuberculosis in cattle in Ireland are, I believe, greater than in, say, for instance, the Manchester milk supply radius, because in the latter the buildings on farms are covered by the handcuffs, and as a rule are sunny, well lighted and well ventilated, quite equal to the very best cowhouses to be found in Great Britain. In Ireland it is quite different. The majority of farmers have had to erect their own farm buildings, and many of these are neither well ventilated nor well lighted, and do not give half the cubic air space usually provided in England. Besides, many farmers have no spare buildings for isolating diseased animals. Accordingly, regulations or Orders regarding the ventilation and lighting of cowhouses and cubic air space to be provided for each animal, such as are adopted by local authorities in England, would, if put into effect in this country, call for much more drastic changes than would be generally necessary in England, and would, in fact, require the expenditure of more capital than the majority of Irish farmers could possibly afford. On the other hand, I must point out that on Irish farms the cattle are out in the open air to a much greater extent than in England, and to this fact may be attributed the relatively healthy condition of our stock; and also, owing to this factor, less stringent conditions in regard to air space are required in this country. I never saw a "pinner" until I went to England.

5023. Prof. MERRILL.—But you have seen them since you came back?—Yes. I never saw one till I went to Cheshire. There is no doubt about the prevalence of them there. Furthermore, farmers complain that if they improve buildings or erect new buildings, their valuation is immediately raised, and they are taxed on their own improvements. I believe in the past this has deterred many farmers from erecting new buildings. If the valuation were not increased for, say, five years after the buildings were altered or erected, it would give the farmer time to realize that he was gaining some advantage from his improvements

before he had to pay the increased tax. I am perfectly certain that this has deterred a great many farmers from improving their premises or erecting new buildings, and if you take into consideration districts where the rates are actually from 10s. to 12s. in the £ on the valuation, a farmer will be slow to put up a byre, the valuation on which may be £2— and you cannot have a very great byre with only that valuation—because he knows it will mean an increase in his taxation. This has deterred many tenant-farmers from erecting buildings in many districts where the rates are so high, and if there could be something done as I suggest a great many more farmers would improve their premises.

The CHAIRMAN.—The County Councils are always on the prompt to increase their valuation.

5024. Lady EVERARD.—Relative to the sale of milk, may I read this letter?—With regard to the sale of milk and cream in the U.S.A., the regulations are becoming more and more exacting. The milk supply is becoming standardized, graded in three classes, viz.—(1) Certified milk; (2) Inspected milk; (3) Pasteurized milk. (1) Certified milk is milk from tested animals, containing under 30,000 bacilli per c.c. (2) This term is limited to raw milk from cows under veterinary inspection, produced under certain stringent regulations. It must not contain more than 100,000 bacilli per c.c. (3) Pasteurized milk. All milk of unknown origin should come in under this heading. The State of Massachusetts and the cities of New York and Chicago have lately adopted this process as a preliminary safeguard against disease, so that all milk that does not come under either of the first two headings will be rendered safe by such treatment.

Witness (continuing his evidence).—I believe the Department would be prepared to assist owners of pure-bred herds, or those who are grading up herds of dairy cattle, to clear their stock of tuberculous by testing their animals with tuberculin, free of cost, if the owners are prepared to comply with certain conditions on the following lines:—(1) Separate the animals which react from those which are healthy; house them in different buildings, and pasture them in different fields. (2) Take the calves at birth from those dams which are tuberculous. (3) Rear the calves on milk which is originally free, or is rendered free, from tubercle bacilli. These calves should not come into contact in any way with the rearing animals. (4) Gradually get rid of these animals which develop clinical symptoms of tuberculosis, or yield milk containing tubercle bacilli, by having the animals slaughtered. (5) Allow their herd to be tested again in six months, and afterwards once each year until the herd is perfectly sound. Each time the test is carried out all diseased animals should be removed from those which are healthy.

5025. Prof. MERRILL.—That is Bang's method?—It is partly Bang's and Osting's.

5026. Sir STEWART WICKHAM.—It seems that most cows calve in October, November and December throughout Ireland—are these the chief months?—No; these are the months of the year when fewer cows calve. The majority calve in the spring months, March, April and May.

5027. Do the cows that calve in October, November and December give less milk?—No, more milk. The farmers have an idea that the cows that calve in the spring and are put out on grass will leave a larger profit than those that calve in October, and also that the expense is less.

5028. So that it is an educational matter?—Yes.

5029. Mr. CHAMBERLAIN.—And the Cow-Testing Associations are designed to bring it home to the people. That is what the Department are endeavoring to mail into the minds of the farmers—that winter dairying is important?—Yes.

The CHAIRMAN.—Thank you very much, Mr. Gordon, for your extremely interesting evidence.

The Commission then adjourned to the following Monday morning.

SIXTEENTH DAY.—MONDAY, 29TH JANUARY, 1912.

The Commissioners met at No. 5, Upper Castle Yard, Dublin.

Present:—P. J. O'NEILL, Esq. (Chairman); Lady EVERARD; Miss MARGARET McNEILL; Sir STEWART WOODHOUSE, M.D.; GEORGE A. MOORHEAD, Esq., F.R.C.S.; ALGER WILSON, Esq.; and DERMOD O'BRIEN, Esq.

S. W. STRANGE, Esq., Secretary.

Mr. J. RALPH DAGG, Dp. Ec., T.O.D., examined.

5630. The CHAIRMAN.—You are Clerk of the Rural District Council of Ballyglass No. 1?—Yes.

5631. In the discharge of your duties you have become familiar with the provisions of the Dairies and Milk-shops Order?—Yes.

5632. Has the Order been put into operation in your district?—Yes, in fact we adopted the old Order of 78. The Order has for years been in operation.

5633. You had actually been making an inspection before the new Order came into force?—Yes.

5634. Will you kindly tell the Commission what provision is made by your Council for putting this Order into operation?—We have in the Rural District of Ballyglass No. 1 two Dairy Inspectors.

5635. Are they qualified men?—No. They were Relieving Officers who were appointed under the old Order, and they were continued.

5636. They have no professional training, but, of course, they have a varied experience of the Order owing to their long service?—Yes.

5637. Is anything further done by your Council under the Order?—I think I mentioned in the reply I gave to the queries of your Secretary the number of dairies that are registered in the district. There are only 33 persons registered for 189 cows as dairy-men, cowkeepers, or purveyors of milk for the entire rural district, consisting an area of 304,000 acres.

5638. And a population of 9,700?—Yes.

5639. In the town of Ballyglass, do you know is there a scarcity of milk for the proper inhabitants?—Yes, though I think the town of Ballyglass is better supplied with milk than many other country towns, because many of the shopkeepers have town parks, and they sell milk to their own customers; but a labourer man told me that he could not get milk, as his name was not on the shopkeeper's books.

5640. You must be a recognised customer at a certain shop to enable you to procure milk?—Yes. The milk acts as a draw to the provision and other shops. On inquiry I found that there has been a great diminution in the number of milk cows kept by the traders of Ballyglass within the last 30 years.

5641. To what cause do you attribute that?—Well, there is a diminution of tillage, and people go on for rearing store cattle. Ballyglass Fair has improved in that respect, as those acquainted with the cattle trade know.

5642. Do you know have the provisions of the Order and its enforcement by your Council in any degree limited the supply of milk?—No. There were 196 cows in the neighbourhood of the town thirty years ago, and at present there are only 60 cows, and some of these people, I am sorry to say, are not registered.

5643. Do you enforce registration?—Not as perfectly as it should be.

5644. Would you tell the Commission exactly why it is you do not enforce the provisions of the Order?—It is because you believe that it would restrict the milk supply?—No, but some people don't like to be registered for the sale of milk, and where they have been compelled to register the moment that the demand for milk ceases they stop. I will give a case that will show you what I mean. There is a district—the Glen of Inelar—where there is an arbitrary ridge during the summer months. The men supplying the range with milk registers only during the summer, and then applies for a withdrawal of his registration. The following summer he will take up the registration again.

5645. What becomes of the cows that a man like that would keep during the period the soldiers are not in camp?—I presume he converts the milk into butter.

5646. For what reason do you suggest that he applies for the withdrawal of his registration—as it so prevents your officer from inspecting his premises?—I hold that is so.

5647. Has the inspection made by your officer led to improved conditions regarding the housing of the animals and the cleanliness of those who are in attendance on them?—It has.

5648. And these restrictions are regarded as irksome by cowkeepers?—Yes, undoubtedly.

5649. And the moment they find it possible to break free from these restrictions they will do so?—Some of them will do so.

5650. Do you think it would be wise to put the Order into operation generally in regard to all the people who produce milk?—I do.

5651. And don't you believe that if the Order were indiscriminately administered throughout the entire district, this feeling that is entertained towards it—the desire that seems to be manifested to evade this provision, must die out?—Yes, I think a compulsory rule is better than an optional one.

5652. Perhaps this is rather a difficult question for you to answer—do local influences in any way govern the administration of the Order by your Council?—Well, that is rather a difficult question for me. I must say that I cannot tell you from memory of any flagged case.

5653. At all events there is a feeling prevailing that the application of the Order imposes certain conditions which are regarded as irksome by the cowkeepers, and this prevents the Order from being put into operation indiscriminately?—I have known cases where infectious diseases existed in houses where milk was sold by shopkeepers who had friends on the Council, and some members of the Council themselves, and these diseases were not reported.

5654. Is not that a source of danger to the public?—Yes, but I cannot tell you of a case of disease being spread from that source, but I know disease existed in houses where milk was sold, and that the disease was not notified. There is a tendency to conceal disease if they can. There have been melancholy results. A clergyman in my neighbourhood attended a parish recently and in consequence conveyed scarlatina to his family, and one of his children died of the disease.

5655. That case was not reported?—No.

5656. Have you made a notification of tuberculosis imperative?—No.

5657. Your people don't seem anxious to advertise their marketplaces?—No, the County Council adopted the Noxious Weeds Act, and afterwards it was cancelled.

5658. Certainly you are not particularly anxious to adopt modern methods of legislation in your district?—Members of the Council, you see, were interested, and they opposed it.

5659. Is there a diminution of tillage in your district?—Yes, you can get the official figures.

5660. I would like to know how this diminution is a factor in reducing the milk supply for consumption amongst the poor?—It is to some extent, but to what extent I cannot exactly say. I consulted with the Medical Officers of Health and they told me there was a deficiency in the milk supply. In fact, one doctor told me that there was no use in ordering milk for people, that it was not procurable. I have known doctors who purchased milk and gave it to the patients, who could not get it otherwise. A policeman in the village of Killegha told me he had to buy condensed milk. Some people come in from the country two miles to Ballyglass and Backetstown for their milk supply.

5661. Are there any consumers at all in your district?—No.

5662. Nor in the surrounding neighbourhood?—No.

5663. It is hardly necessary to inquire, what you said the milk supply is so limited, whether or not children of the poorer classes get a sufficient quantity of milk as a food?—They don't. I made inquiries some years ago at the request of Mr. William Fox, Secretary to the Board of Trade, and I interviewed some labourers. One labourer, with a wife and four children, told me that he got a halfpennyworth of milk in the morning and a halfpennyworth in the evening—about a pint a day. That man and his family if in the workhouse would get at least a gallon of milk a day. An able-bodied workman in the workhouse would get in the morning half-pint of milk, and half-pint at supper, and children from nine to fifteen years, one pint in the morning and three-quarters of a pint in the evening. That was our old dietary scale up to a few months ago, when a new one was put into operation.

5664. Is the milk supply increased in that?—Breakfast half-pint, dinner a pint, and supper half-pint, for able-bodied men; and children from eight to sixteen years, half-pint for breakfast, and some days they get milk and other days lentil soup, and for supper three-quarters of a pint of cocoa milk—the proportion of milk is half-pint to each pint of cocoa.

5665. And in the majority of instances labourers purchase for their families only a halfpennyworth in the morning and a halfpennyworth in the evening?—Yes, and a pennyworth in some cases. That applies while the labourer's family is small and cannot help him, but when they are able to help they get a larger quantity.

5666. Is the larger quantity available?—Not at present, and there is a complete absence of butter-milk. A farmer told me more poets in drink in the hayfield than butter-milk.

5667. Is it your opinion that the absence of milk for children must necessarily have an effect on the constitution of the rising generation?—Yes, I do think so. The children seem pinched. They are not the rosy-cheeked children we had of old.

5668. And if the district in which they reside is visited by an epidemic children such as you describe would quickly succumb?—Yes, I am told by the doctors that their disease-retarding power would be less.

5669. Have you thought of any scheme whereby the deficiencies existing in your district could be remedied?—Well, I think I suggested co-operation.

5670. What form do you suggest it should take?—I should like to see a society of farmers organized, say, with the assistance of people of all denominations, especially the druggists, and if a certain amount of capital was found, that each person should become a shareholder for one or more shares; they should pay up 2s. on these shares, and then I would expect the Government to give a loan (as I am opposed to subscription grants), at a low rate of interest, for the purpose of establishing milk depots worked by co-operation. The rate of interest would, of course, depend on the period within which the loan was repayable. It is hard for me to condemn a District Council, but I do think District Council management would not be a success.

5671. Do you think that you plan would be preferable to one which would endow a local authority with power to procure land compulsorily and carry on dairying in a municipal way?—I do, both practically and from a point of view of principle. This is a matter which the individual element enters into largely, and at the present time our District Councils have enough to do without embarking on schemes of this kind. The members of the Council are not people of leisure, which is a great drawback. The consequence is that in my own Union the internal management of the workhouse is not looked after as well as it might be. I think the House Committee never saw a meal cooked in the workhouse for the last ten years. They come into the Board-room and discharge the work that comes before them, but to superintend the domestic arrangements of the workhouse they do not do it, and the question of a dairy would be a domestic management. The Councils have not leisure enough to do that. At the present it is difficult to get a quorum to carry on the business of the Board. There are some dangers of abuse arising. I regret to have to put my opinion against others.

5672. We are glad to receive the opinion of every witness. This Commission is not committed to any definite view, so do not understand that there is not absolute freedom to express your own unbiased judgment, utterly regardless of whatever authority you may come in contact with?—Of course, I have great respect for the person who put forward the other theory, but I have my own ideas. That is my idea—co-operation of farmers, aided by a loan.

5673. What I want to know from you is, how far it would be possible to secure the co-operation of a certain number of people of leisure to work and control such a scheme as you have outlined?—The attempt was made before, and I think on the last occasion it would have been carried through by a clergyman—Father Phelan—only that he got into poor health. I think it would have gone through then only for that. I think at the present time the milk produced by the smaller farmers is being badly worked. They keep the cream until it makes bad butter. In fact, we have no butter supply. At present, if you want to get better you have to get Glens's.

5674. You have not a better market in Ballingmahon?—We have, but not in the winter time. If this co-operative depot, I suggest, get the milk from the smaller farmers, and were bound to sell it at a reasonable price—a penny a pint—eightpence a gallon is ample—I think it would be the best means of dealing with the matter.

5675. Do you think that milk could be produced for that price at a reasonable profit in your district?—Yes.

5676. The cost of producing milk varies in different localities?—Yes, owing to competition we have a low contract price in the Workhouse.

5677. What is your usual contract price?—For the last five years, from 5½d. to 6½d. a gallon.

5678. So that there is a safe margin between that price and 8d. a gallon?—Yes, and my milk left over after 9 a.m., or 8 p.m., could be converted into butter. The milk should be sold at the depot from 7 to 9 in the morning, and from 6 to 8 in the evening.

5679. And the surplus converted into butter?—Yes.

5680. And you do not apprehend that there would be any difficulty in getting a sufficient number of people resident in your district to manage and control such a scheme if once started?—I am enquiring in that respect.

5681. And the only condition that you would impose is that money should be had on reasonable terms for the purpose of covering the capital expenditure?—Yes, not exceeding the nominal capital, because the State should bear security.

5682. Are you opposed to a subvention from the State or local rate?—I am.

5683. And you believe it would be possible to deal with the difficulty independent of that?—Yes, I think it is the only way to do it. You have the case of the Labourers' Acre money of three and a half per cent., and it is utilized at a loss; it returns only a percentage of one and a half. The labourers' cottages scheme is actually collectivism in one sense.

5684. That is largely controlled by local authorities—the rent that is charged to the labourers?—All over Ireland the rent charged is not equal to the interest on the loan.

5685. I admit it is not, but at the same time it must be remembered that it is possible to work that scheme without loss, if the local authorities set it up as a principle of their administration?—Yes, it may be theoretically possible.

5686. But you think it is practically impossible?—Yes.

5687. It has been suggested to the Commission by representatives of other interests that the introduction of the labourers' cottages into the district has broken the bond that subsisted between the employer and employee, and has rendered the milk supply less general than it was previous to the introduction of the Acts. Has that effect been produced in your district to some extent?—Yes. Heretofore the labourer lived "under" a man, as it was called, and in addition to his wages he had the right to get a supply of milk. He has his independence now, but he has bought it at a price that often leaves him in a position not to be able to get milk from the farmer for whom he formerly worked, and the fact that he applied for a cottage on a farm was too often a reason why the farmer dismissed him.

5888. At all events, you think that the relations subsisting between the employer and employee have substantially varied owing to the independence secured by the labourers under the Labourers Acts?—Yes, so far as the supply of milk is concerned.

5889. We have been dealing up to the present with a scheme which was apparently only suitable for a town?—Yes.

5890. How would you suggest that a rural district should be dealt with for a similar purpose?—First of all, I would encourage the breeding of hornless goats. About eight years ago I was at a Tuberculosis Congress in London, and in the Veterinary Section a Belgian gentleman stated that tuberculosis broke out amongst his cows, and he got a supply of hornless goats to complete a contract for the supply of milk which he had. He said that they were less mischievous than the horned variety, and the milk was more palatable.

5891. You think the goat question would solve the difficulty in the rural districts?—That would be one resource. Outside two miles of a town, if the small farmers could be got to put their heads together, and get modern utensils instead of the old dash-churns, it would be a great matter. I attended dairy lectures in my district, and when I asked the dairy instructor what was the price of these utensils it occurred to me that the price was prohibitive to the small farmer. None of the small farmers at present could afford to pay £12 or £15 for the modern appliances used by the dairy instructor; it amounted to a whole year's rent; and it would be well if you could get five or six of the small farmers to churn on different days, and let the County Council have power to supply them with churning utensils, as they did potatoes and oats under the Seed Supply Acts. I think that would help the matter.

5892. Do you suggest the County Council rather than the District Council?—The County Council are the rate authorities; the District Council do not strike the rates.

5893. Now, you are apparently varying your views, because you do suggest striking a rate for this particular purpose?—It is called a rate. It is assessing an instalment upon each person who would get the utensils.

5894. Terrible on these alone?—Yes, the same as on the people who got the seed potatoes. It is legally called a rate, but it is really an instalment of a loan to individuals.

5895. I would like to have your views on another suggestion made before the Commission. How do you think a scheme like this would work, supposing the District Council had authority to enable them to enter into a contract with landowners and co-operators in parts of your district, for the purpose of supplying a fixed quantity of milk, to be delivered within a certain radius by them, at a fixed price, which would be guaranteed and paid by the District Council. How far do you think that would be a practicable scheme if the goat scheme was not entirely effective?—I think that scheme seems to me to have possibilities about it. It means to a certain extent outdoor relief in kind, only that you pay for it. I am aware that in some unions the relieving officer gives relief in kind—tea, bread, sugar, &c. This is practically the same kind of scheme, only that the people pay for what they get.

5896. The only object that I have in my mind is to ensure that people living in remote districts, who now find it impossible to procure milk for their children, even if they had the money to buy it, should be provided with a supply. How far do you think that condition prevails in any part of your district—is there any part of it in which people having money to buy milk for their children find it impossible to procure it?—Yes, there is.

5897. And do you not think it ought to be the first essential of local administration?—Well, my own sympathies are with the ideas underlying it, but still I do not like the State to interfere too materially with individual effort—with the persons who are trying to live as milk producers.

5898. I must say I do not see any conflict between trade interests and a scheme of the particular kind that I have described, because it is not running an opposition shop to any vested interest. It is simply providing a outside article in a district in which at present it is not procurable?—It is very hard to say or to know where the influence would end.

5899. I can quite understand, but do you not think that the public health is really one of the prime considerations of any administration, whether local or

State?—Yes, but still I think there is a limit. There should be some limit to State interference. Of course, it is very hard to strike the line, because if you push it to the logical conclusion where will it end.

5900. Have you the same objection to a local rate being used for the purpose as to a State subvention?—I have.

5901. At the present time the local rates are raised for the purpose of providing houses for the destitute, hospitals for the sick, industrial schools for destitute children, asylums for the insane. All of these objects are for the purpose of protecting those who have the misfortune to be under a visitation of providence. The scheme for the supplying of milk would begin to build up robust constitutions in the rising generation, and thereby limit the number of those who in the future would become the victims of these misfortunes. Is it not an analogous application of public money, the only difference being that in the one instance it is prevention, and in the other cure?—I cannot give you my opinion in my own words, but I would like to read a paragraph from an American publication. It is from a Professor of Economy in an American University.

5902. I have a great respect for many things American, but I draw the line at American positivism.

—This is a standard book on the question of public finance by a Professor of Economy in an American University. You asked me a question that I find it difficult to reply to in my own words. The opinion I refer to is that of Dr. Klein, author of "Public Finance." He states—"It is impossible to approve on a priori grounds of every intrusion of the State into fields hitherto set aside for the individual. Only when such intrusion does not lessen individual power, energy, ambition and ability to advance is it permitted. And only when it promises definitely to increase the importance of the individual in the long run is it desirable. The burden of proof is, therefore, in each concrete case thrown upon the persons who would have the State advance into new fields."

5903. I would prefer it in "your own words, but I will not press you?—When I look at the matter from the point of view of the public health it is a case for State assistance, and I have advocated State assistance in the way of a loan.

5904. What I do not understand was why, having gone a certain distance, you are not prepared to go further?—I look upon subventions as falling unjustly, and amounting to a poll-tax—a tax on the people at large.

5905. It is because you think that these people themselves would have to participate in the payment of this particular tax that you think it unjust to levy it on the whole?—Yes.

5906. Would not that make it less demoralising—the fact that these people were conscious that they were contributing themselves?—There is a great danger of abuse in subvention grants.

5907. You are strongly in favour of procuring co-operation for the supply of milk to towns?—Yes.

5908. How far do you think that scheme could be worked for the country, supposing you discarded what I suggested—how would you suggest the application of your co-operative scheme in remote mountainous districts?—There the goat would come in, because he could do very little harm on a mountain. You have at present a scheme for subsidising bulls. To my mind it is the cows which should be subsidised, because, as a rule, the valuable male animal belongs to a gentleman of means; and I think if desirable heifers got a premium, provided the farmers kept them until they were match cows, it would tend to promote a more plentiful milk supply.

5909. I am very sorry Mr. Campbell is not present to hear this particular view, because it would be of practical interest to him.—My experience is that the local noblemen, the wealthy gentlemen farmers, and the wealthy people, will have a valuable male animal whether they get a subsidy or not, and I think the small farmer should be encouraged to keep a good breed of match cows; because if he can get £14 for a good heifer she is sold to be turned into beef.

5910. You think the best types of animals are not kept for the purpose of producing milk?—I am afraid not all.

5911. And you believe that fact has a certain influence in limiting the supply of milk?—Yes. The buyers look out for the good cow that is easily converted into meat. I saw at Limerick the other day, at a meeting of the County of Limerick Agricultural and Technical Committee, the following amendment was proposed to a resolution—"That owners of cows

calfing between 1st October and 1st January get a subsidy of £2 per cow for the first year, £1 10s. for the second year, and £1 for the third year, not to be given to anyone who has not at least two cows calving between the dates mentioned. No man to receive more than £16 in any one year. Owners of subsidised cows must guarantee to send the full milk supply of those cows to the creamery; and we ask the Department for a subsidy of £3,000 to carry out the scheme." This amendment was rejected and the following resolution was passed:—*Resolved*—That having exhaustively considered the question of winter dairying, we request the Department, as an encouragement to the movement in this country, to subsidise all milk supplies to creameries, and to the extent of 2d. per gallon for the months of December, January and February in each year, such subsidy only to be calculated on the increased supply over their ordinary supply, calculated on the three previous years' average."

5712. That is quite a new aspect of the question?—The idea there of the subsidy for the cows agrees with my own.

5713. Referring to your earlier evidence with regard to the dairy inspectors, what is it that these officers do in your district? They inspect the registered dairies monthly, and give in stereotyped fashion the height, length, and breadth of the premises, the number of cows kept, that the water is sufficient and premises clean. I think it is more from a sanitary point of view that their services are effective, because where manure heaps are too near the house, and the houses not littered, they serve notices.

5714. Do they report defects of that kind to the Council?—Yes.

5715. And action taken?—Yes.

5716. Even to prosecution?—We have no prosecutions; they comply with our orders.

5717. The mere service of the notice was sufficient?—Yes.

5718. Have you a veterinary inspector in the district?—There is one under the County Council.

5719. Does he make inspection of dairies?—No, we have no veterinary inspector living in our Rural District. The veterinary inspector under the County Council lives in Carlow.

5720. So you have no veterinary inspection whatsoever?—No.

5721. And no inspection is made to see that the animals are in a healthy condition?—No. On one occasion the dairy inspector reported that he thought one of the cows in the district was a "pinner," and I was ordered by the Council to ask the man to get rid of the animal quickly, and not to use the milk for drinking purposes.

5722. With what result?—I cannot call to mind.

5723. It is not quite a recent occurrence?—No.

5724. But at all events no action has ever been taken to enforce the carrying out of the Order?—No.

5725. You spoke of vessels that have been used in the churning as not being modern. They do not adopt modern chassis and vessels?—Not at all cows.

5726. Is much attention given by your inspectors to these vessels?—I think they discharge their duties fairly well. When I made inquiries I found there were some people that should be registered that were not. In fact, there is one extraordinary case; a dairy farmer was fined £20 in Dublin who is not registered in Dublin. My assessor came to visit me and he said, "Put water into this milk. It is too thick." He was accustomed to thinner milk.

5727. Where does he come from?—From North Dublin, Drumcondra.

5728. That is in the municipal area, I am glad to say. I accept no responsibility?—I think that milk should be sent for analysis more frequently.

5729. Is there a large trade in your district in the sending of milk to Dublin by train?—From both sides there are three farmers, and the milk is also sent from Grove Con and from Dunbrin. There are about seven farmers entirely supplying milk to Dublin from our district.

5730. What precautions are taken to ensure that the milk sent from these districts is produced under clean and hygienic conditions? Is anything done beyond what your dairy inspectors do?—No.

5731. Do these dairy inspectors ever report to their Council that they send the vessels that were used to contain the milk in an unclean condition?—They have done so, but rarely. As a rule they report that the vessels are clean.

5732. What action would be taken by your Council on such a report as that?—I would be instructed to serve them with a notice, saying that the dairy inspectors had stated that the vessels were unclean, and to get them cleaned.

5733. Would the dairy inspector be requested to report further?—In the following month he would report that they had complied with the Order.

5734. And if the Order was not complied with?—Probably the matter would be let drop.

5735. That is not a very satisfactory conclusion.

5736. Lady Eyreman.—Supposing a cow has taken colic, is that reported at once by your inspectors?—There is only one case of a cow reported since the new Order came into operation.

5737. Does your veterinary inspector look after the cows every month?—We have no veterinary inspector.

5738. It has been given to us in evidence that in certain parts of Ireland milk depots have been established. We had evidence from Lady Mayo in reference to a depot established in Naas, and she said that it was of the greatest advantage to the town. There are three people who combine and supply the townspeople of Naas who come to the depot for the milk?

—That would be a very good idea. My own idea is the same, only that I want to have the depot under the management of a committee. I know the neighbourhood of Naas pretty well, and there are large farmers there who would keep a big dairy. We had large dairies in Baltinglass thirty years ago—one with twenty or thirty cows. The greatest number of cows now in any dairy in the town is seven.

5739. A system has been started in Carlow similar to that in Naas?—I was not aware of that.

5740. And it also has been most successful and of the greatest benefit to the people. It was started in connection with the Women's National Health Association?—In Carlow?

5741. Yes, and in Naas?—Unfortunately we have no persons of large means resident in our neighbourhood. In Carlow they have.

5742. From what Lady Mayo told us it does not require people with large means, but people to band themselves together with a view to help their neighbours?—Practically all the people in the town of Baltinglass are selling small quantities of milk themselves, and you would find it hard to get any people to come together to form a milk depot against the interest of these people.

5743. It is not against them; it is in case you cannot get a supply of milk in the place?—I quite agree with the idea. Where you have people public-spirited enough it would be good. We find great difficulty in getting philanthropic work carried out in our district.

5744. In Meath, Father Barry, of Glenties, has started a scheme for providing milk for labourers. When a large sack was being distributed 18 acres was reserved for the benefit of the labourers to grow their cows in summer; and the cost to each labourer is about thirty shillings a year?—That is very cheap. Two shillings and sixpence a week is what is charged for the grass of a cow in our district.

5745. This scheme is managed by a committee appointed by His Excellency?—If we could get gentleman like Father Barry to take an interest in the matter half the battle would be won.

5746. You think that would be a feasible scheme if it could be worked?—Yes.

5747. Dr. Mooney.—The number of cows in your district has diminished?—Yes.

5748. Has the population of the district diminished?—Yes, there has been a steady decrease in town and country.

5749. Are there any other institutions besides the workhouse in your district?—No.

5750. It has no difficulty in getting its milk supply?—Oh, no; there is great competition for it.

5751. So that there must be more milk produced than there is demand for?—If a person loses the contract for supplying the workhouse he changes his system of farming. There were six large farmers who kept from twenty to thirty cows apiece, and now there

are only two. The competition for the workhouse supply is now between two persons—a bitter competition.

5752. The CHAIRMAN.—There are only two persons in the immediate vicinity keeping sufficient cows to supply the workhouse?—Yes.

5753. Dr. MOGHAN.—Do you anticipate the diminution in the milk supply to the deceased since under tillage?—Yes.

5754. If you started a co-operative scheme would you want to increase your tillage?—Yes.

5755. Is the population available for that?—I think the population is sufficient to do much more tillage than is carried out. It would give employment, improve the land, and produce food.

5756. And you would have sufficient consumption of your milk to have a profit of 8s. per gallon?—If you are a permanent customer of a shopkeeper in Bellingham he will give you a supply at a penny a pint all the year round.

5757. But that does not admit of much profit, I think—These farmers who are selling to Mr. Nash, manager of the Lissen Dairy, give their milk at 3s. in the summer and probably 6d. in the winter.

5758. The CHAIRMAN.—Is milk sent from your locality to the Lissen Dairy?—Yes.

5759. Dr. MOGHAN.—Have you any experience of any other method of feeding cattle in winter except roots?—Yes, cotton cake. I have seen cattle fed upon brewers' grains.

5760. Is there any ensilage?—It has gone out. Three gentlemen started silos some years ago, and one told me that it only suits in a wet year, when you can't make good hay.

5761. Mr. WILSON.—Can you explain a discrepancy in your summary of evidence—you state that you have only got thirty-three persons registered in the whole of your rural district, and later on you state that nearly everyone has some kind of a dairy?—I meant the place where they keep the milk, when stating that nearly everyone has some kind of dairy. Every person who has a cow now has some apartment to keep the milk.

5762. Is the number of people who keep cows much larger than the number registered?—Certainly. I suppose there are a thousand people keeping cows. By the word "dairy" I meant building. Persons who supply milk to their labourers are not bound to register, and they may only keep the milk to produce butter.

5763. You have already told us that a certain quantity of this milk is sent into Dublin, and that you have no veterinary inspector?—That is so.

5764. And that no action is taken if the hyeres are not in a sanitary condition. Looking at the matter from the point of view of the public health in Dublin, should they not get powers of control over these hyeres?—There is a general improvement in the people, and in the country there is less danger than in the city.

5765. That is not the evidence that has been produced before us. The risk that occurs in the milk trade appears to be much commensurate in the country than in the city, and particularly in hyeres with a small number of cows?—I would not agree with that evidence.

5766. The reason given is that the man who has a good many cows will see in his own interest that these cows are of a high grade and properly cared for. Whenever he has a cow sick he will not send her milk for sale, for fear of injuring his reputation, and if she is diseased he will destroy her; also he is usually a better educated man. The small man, on the contrary, has not such valuable cattle, and if anything goes wrong with the milk or the cow it is a tremendous loss to him to destroy either the milk or the cow, and in the circumstances which have been made the greatest percentage of diseased animals were found in the small country hyeres?—That is so about a diseased animal. The poor farmer will lose the animal, when the best thing would be to destroy it; but I am not aware of the disease being discriminated by the milk of such cows.

5767. Your biggest dairy only registered seven cows?—That is only in Bellingham. I was dealing with the milk supply in the town.

5768. What is your maximum?—One man is registered for nine, another for twenty-three, another for twenty-five, and another for twenty cows. All these supply Dublin.

5769. So that the seven-cow hyer only applies to the town of Bellingham?—Yes.

5770. Supposing this Commission should recommend that the city authorities should get power to inspect hyeres outside their district, how do you think that would work out at your meet?—I think it would be a desirable thing.

5771. You would not anticipate any serious friction between the Dublin authorities and your own?—No. You asked me some time ago about cleanliness. I am aware that milk is not properly strained very often, and one thing I have objected to is milkers putting their fingers into the pail and not washing their hands.

5772. With regard to milk depots, the milk depots we have heard most about have been established for the most part on philanthropic lines. They have been in the nature of a charity, in order to supply a higher quality of milk than is supplied in the ordinary commercial course, and they must of necessity lose money. We have had evidence that these high-class municipal or philanthropic dairies cannot be run at a commercial profit, at any rate at least not been suggested here that they have. Your idea would be to run a commercial supply of milk on a philanthropic basis?—Practically; but I would expect that they would try to work without a loss. If you had a loss in a municipal area you would be likely to have a greater loss in a rural district.

5773. This is a delicate question—one the establishment of a depot where milk of a higher quality could be obtained for the purposes of a sick child; for example, where a doctor can give free or cheap milk, and in that case the municipality, or a philanthropic society, whichever was available, would manage what may be called a dairy for children or infants?—You have power to supply milk, if you can get it, through relieving officers, provided it is recommended by a medical man.

5774. I am not speaking of what would come under the Poor Law?—Well, the well-to-do families have cows for their own use, and they do not sell any, or will not.

5775. Quite so. Let us take the case of a well-to-do family, and the doctor says—"The child must get milk of a better class than you have in your own dairy."—If the milk is up to the average in fat and in other constituents it should be sufficient. As a rule, one cow's milk is the same as another. There is an idea that if a cow gives a lot of milk it is not as rich as that of the cow which gives a lesser quantity. I know a couple of cows that would give an enormous quantity of milk—four gallons.

5776. I put it to you that the term "dairy" includes the type of dairy that cannot be run at a commercial profit, and the commercial dairy intended to be run at a profit; and my suggestion is that the local authority could equip and manage themselves, or subsidise the type of dairy that is not making a profit, such as the one in Sinc Road; but that it is not their business to interfere with the commercial milk?—I agree, so far as public health requires. I doubt the expediency of the municipal management very much.

5777. Your idea involves co-operation?—Yes.

5778. I do not quite understand what you mean by a Government grant, because the co-operation that is required is the people forming themselves into a company composed of a number of small farmers who subscribe each a share of capital to work the depot, where does the grant come in—for what purpose is it wanted?—I do not expect that the people would have sufficient funds to supply all the capital, and I want to enable them to get it.

5779. The Joint Stock Banks are there?—Yes, but you would have to pay 5 or 6 per cent. interest.

5780. A co-operative society can borrow below 5 per cent. They do it in actual practice?—All I would ask the Government for is a loan on reasonable terms and not a grant. It would take probably £200 or £300 to equip the dairy.

5781. Dr. MOGHAN.—Would you not want more than that for the cows themselves?—I am not touching the cows. I wish all the small farmers to come in and sell their milk.

5782. The CHAIRMAN.—This would be only a distributing depot?—Yes, both a receiving and a distributing depot.

5783. Mr. WILSON.—I put it to you this way, that at the present time there is nothing to prevent the

farmers in Bellingham from coming together in a public meeting and seeing what amount of support they would get without any assistance from the State?—A sufficient sum would not be subscribed. I had some experience of that. I acted as secretary to our town hall, and it was with great difficulty we got 2000. I think it would be very difficult to raise the capital from the small farmers themselves.

2283. It is, of course, a feature of co-operation that the place where it succeeds best is where the farmers raise their own capital?—I want the farmer to be liable for half the capital and the balance got on loan from the Government. If the capital necessary is 2000, the farmers should subscribe 2120 of that in 21 shares.

2284. We have had evidence before us that the Board of Works are quite prepared to grant loans for the purpose of this kind?—I was not aware of that.

2285. The CHAIRMAN.—I think the Board of Works only grant loans for the improvement of byres.

Mr. WINNIE.—I thought this would come in.

The CHAIRMAN.—I am afraid not. I am rather inclined to think not, because, you are, the Board of Works has only power to grant money for the improvement of buildings connected with the land. This could hardly be said to be a building connected with lands, except that the produce distributed is from the land.

Witness.—My suggestion is that a house should be taken in a country town at a rent of £20 a year. You would have to furnish it and employ a manager and equip it, and then the farmers of that district from two or three miles around should send in their milk and that be purchased from them, and that the sale should take place two hours in the morning and two hours in the evening; and that any milk that was not wanted should be converted into butter.

2286. The CHAIRMAN.—You calculate, of course, that the price of milk should be fixed for a certain period by the promoters of the co-operative scheme?—Yes.

2287. Suspense, acceptance, or eightpence in the winter, and frequence or suspense in the summer?—Yes.

2288. So that the farmer knew that he had an outlet for a certain quantity of milk at a fixed price?—Yes.

2289. Lady KENNEDY.—With regard to Nans, Lady Mayo's evidence was that 8d. a gallon was paid for the milk?—I should say 8d. a gallon is a fair price, because 8d. a gallon for milk represents 1/- a lb. for butter.

2290. Mr. WINNIE.—Did you discuss this matter with any farmers in the neighbourhood?—I have not. I told the Guardians the nature of any evidence before this Committee, and some of them approved of it.

2291. In your opinion would there be any volume of opinion in favour of such a scheme amongst the farmers?—I should think there would be. An attempt was made by Mr. Neil to start something of the kind, and also Father Phelan, of Rathvilly, some years ago, and I think it would have gone through only that Father Phelan got into delicate health.

2292. I think it would be a very interesting experiment if you got up a meeting dealing with the matter, and reported the result to us?—I was asked to do that before, but being a public official I could not do so.

2293. Dr. MOSEMAN.—It would be to the interest of the farmers to have the dairy, they would send their milk there instead of to the Luan Dwy.

2294. Mr. WINNIE.—You spoke in your summary of evidence about the milk vessels being wooden. Would you see any difficulty in making these vessels illegal?—I would be in favour of that.

2295. You would be in favour of standardising the vessels?—Yes.

2296. Lady KENNEDY.—Have you heard of milk being the cause of disease?—Not in my district.

2297. But you have heard of the term, "typical, barren"?—We never had a case of that kind.

2298. Sir STEWART WOOLMAN.—You say there are thirty-three registered persons in your district?—Yes.

2299. Does that mean thirty-three places registered for the sale of milk?—Yes, people who sell it or send it away.

2300. I suppose a considerable number of these are in Bachelstown and Bellingham?—I should say eighteen are in the town and fifteen in the country.

2301. There is a greater scarcity of milk in the country than in the town?—Yes.

2302. You spoke of a generation ago, that there were very-cheeked children, and the same condition observable in some children compared with that time?—Yes.

2303. Did the children get a larger supply of milk at that time?—Yes.

2304. The scarcity now does not arise from any increase of poverty among the people, but from the fact that milk is not accessible in the same way?—Yes.

2305. And your proposal is that means should be adopted to spread the supply of milk more widely?—Yes.

2306. Could that be done at the present time in the country districts by the relieving officers being constituted purveyors of milk, and remunerated by the profit between buying at 6d. and selling at 8d. a gallon, and if the relieving officers were not available could a trustworthy labourer in a Union cottage be employed—could nothing be done in that way?—That is the idea that the Chairman put before us, but I do not think it would be an economic way of working. I prefer my own co-operative scheme to that.

2307. Does that refer to country parts as well as to towns?—It refers particularly to towns.

2308. The CHAIRMAN.—The point comes in in the rural districts?—Yes. I would suggest that agriculture and dairying should be taught in our National Schools. I think the absence of such teaching is a great defect. I think if people used the thermometer more it would be better too. When I was a small boy I spent some holidays on a farm in Co. Cork, and the wife and all the daughters engaged in the milking of the cows—they were young ladies that were educated at high-class schools—went out and put on their overalls and milked the cows. Now I am afraid the piano stool is more cultivated than the milk stool.

2309. Dr. MOSEMAN.—Have you often attended Bellingham fair?—Yes.

2310. Have you seen the cows milked afterwards in the fair?—When a man buys a cow he tries her, and immediately she is purchased the poor people take away the milk. There is, of course, a danger of the cows being overstocked.

2311. Did you ever notice the sort of vessels in which the people take the milk away?—An ordinary tin.

2312. Did you ever notice the condition of the milkers?—They are the poorest people who go around and milk the cows.

2313. They are not in a very hygienic condition?—No.

2314. And the milk is not strained?—It is not.

2315. And if there is disease in the cow this would be a way of disseminating it?—Yes; and the udders are not washed.

2316. There is no supervision for this class of people whatsoever?—No.

2317. The CHAIRMAN.—It has been suggested to the Commission already that the issue of farmers would be an additional safeguard to the public health in ensuring that the milk would be always produced under hygienic conditions, and the habits of those attending to the cows would be always clean; what would your views be on this subject?—You should have some official machinery for controlling the licensing of cowkeepers. At the present time I issue a registration certificate, but it is not worth the paper it is written on.

2318. The intention of the person suggesting licensing was that it would go further than registration, and that the personal character of the individual applying should be taken into account, and that the byres and surroundings generally where the industry would be carried on should be inspected previous to the granting of the licence?—You would approve of the scheme?—Yes, with the addition that you should have a competent veterinary surgeon for inspection.

2319. Do you not think it would be in the interests of the public health generally that there should be a universal application of the Dairies and Milk Shops Order in every district?—Yes.

2320. Do you think it would be possible to carry out that without having some central control?—Henceforward under the old Act we were under the Privy Council in the Castle, so I presume that we would have central control.

5821. Do you think it would really conduce to the efficient administration of the Order if the administration was supervised through some central authority?—Yes.

5822. Do you think it would be absolutely essential that it should be done in order to ensure uniformity?—Yes.

DR. THOMAS LAIVAN, M.B.C.S.I., CARDIFF.

5823. The CHAIRMAN.—You are a medical practitioner in the County Tipperary?—Yes.

5824. And reside in Cashel?—Yes.

5825. You have a wide and varied experience of the conditions under which the majority of the people live?—Yes, I have some experience at all events.

5826. Do you hold any public appointment?—Yes, I am Physician to two Hospitals.

5827. In the town of Cashel?—Yes.

5828. And does your practice extend to the Rural District surrounding the town?—Yes, sir.

5829. And being resident in that town, you are naturally familiar with the conditions under which the people live?—Yes.

5830. I understand that you were interested in this question which the Commission has been appointed to investigate at a period very much in advance of the present time?—Yes.

5831. I see you published in the British Medical Journal of 1887 a paper dealing with the subject?—I read it before a great meeting of the Association that was held here.

5832. And you were conscious of the fact that at that particular period there was a need of making some alterations in the conditions under which milk was supplied to the poorer population?—I was satisfied that unless something drastic was done the poor would suffer, and every other class, the State and the local taxpayer, and all reared under the system, would all be losers, and that therefore action ought to be taken.

5833. And your further experience confirms the views you then expressed?—Yes. I have lost no opportunity of expressing and urging my remedy.

5834. Did you at that paper deal with any suggested remedy for the then existing condition of things?—Yes, I did.

5835. Would you be good enough to give us briefly what your views were on that particular question—the question of creameries had not then become a burning one, and had no influence on the milk supply at that time, I take it?—No. What I put forward first then, and what I will give second place to now, was the recognised fact that where an article was required for the public benefit, the owners should supply that article on getting the fair value of it; that at that time, if materials were required, for instance, for the repairs of public highways, they should be supplied, the party owning them being paid the value; that if land was required for railways it should be got, and the full value should be paid to the owner. Since then there has been a large extension of that principle. The Congested Districts Board have power to acquire large quantities of land by compulsion. The other day a body called the County Tipperary Tenants' Association passed two resolutions—one expressing satisfaction that they had made arrangements for supplying a large quantity of milk to the London market, and the other along the principle of compulsory purchase should be extended to the unpurchased holdings of Ireland. The contradiction between these two resolutions will strike the people who are here to consider the question of milk supply, but the point I am concerned as to is this—the people who ask for compulsion must be prepared to yield compulsion. If a class asks for everything for itself, the rest of the public have a right to demand a trifle in that direction for the public benefit. That was the view I put forward then, but after Mr. Russell's proposal to get up municipal districts, I am inclined to accept the proposal put forward by him if it could be carried out with reasonable promptitude. When the English Milk Act came before the House of Commons we got from Cashel three-fourths of the Municipal Bodies of Ireland to ask for its extension to this country—that the Irish Municipal Bodies should have the powers conferred on the English Bodies. The last Bill would require one or two milking alterations—one was that the text of the Bill shall be extended to Ireland, and that the County Council shall include Borough Council. The last Bill trans-

ferred to County Councils in England the powers which were formerly vested in the Borough Councils. It was found, for a reason that I cannot understand, that these bodies did not do what I conceived to be their duty, and it became necessary to transfer their power to the more intelligent county bodies. The local bodies here would do their duty if they got the power. If that Bill had been passed that milk question would be fully met with in Municipal districts by the Municipal bodies. I may say at once that I am opposed to voluntary co-operation where you have a legal body in existence, with legal machinery to give effect to its orders. You don't want to be taking houses and appointing well-paid managers, and the whole thing would be done very much cheaper and more effectively by the legal bodies. I would like to see, instead of the drastic measure I proposed twenty-five years ago, Mr. Russell's idea given effect to, but Mr. Russell's idea could not come into operation until a long time of years. By the time you had all the Municipal bodies in Ireland provided with the land which they could get under that English Act, a very considerable number of years would elapse. Take, for instance, the Evicted Tenants Act. There are only a few thousand to be disposed of, and taking those outside the statutory limit also, they would not amount to 20,000, and yet only a small proportion of these have been provided for in five years, and how would you provide for ten times that number. I would like to see the poor woman, who at present sits down with her children in a slop-pan and white bread, placed in a position to demand a supply of milk on paying a certain definite price, and that price would be the price which the owners would be paid for their supply by public institutions, such as workhouses or asylums. That would be the honest test of the price of the article. Now, the failure of the milk supply, and the failure of the poor to get their supply, is a very complex question, and I cannot make a full reply in regard to it. The draw-back in the supply is due to the strained relations between farmers and workers, and one reason why people have got out of dairying is the terrible risk of having their cows destroyed on them. Such a thing occurred as that the farmer's whole staff marched off to some Gaelic gathering, and did not recollect to return at night to milk the cows, and still other cows are imperfectly milked, and these are the two great reasons why a large number of people who had milk cows have had to drop them, and the loss to the community is very great. There is a hope, of course, that the new milking machine, which I am happy to say is working very well, may supply the individual milking agency or instrument, but if the relations between the two classes, the farmer and the worker, could be improved, it would be very useful. The poor people are at present suffering greatly, as the matter of milk, and as I did not come here to lecture to any class, I may say they are very much to blame themselves. If they pulled better with the farmer there would be more milk cows, and they would get their share of the milk, as they used to former days. There is an idea, I perceive, that if you can only double the supply of milk it would drop down in price upon the poor people. That is mere moonshine, because any increase in the supply of milk will find its way to the present dairymen's pockets; they will send it to England as butter or cream, or to Dublin as milk. A mere increase in the quantity of milk produced will not meet the difficulty of the poor man, and the only way to meet it is either Mr. Russell's scheme or the one suggested originally by myself a number of years ago. I believe that a temporary arrangement would have to be made for a compulsory supply until the municipal supply came into operation. I would like to see the general statements made by myself and other witnesses here as to the great want of milk, put to an arithmetic test; and that could be done by the police census enumerators investigating into the numbers, occupations, etc., of those who are living without milk.

partially or completely, and if these facts were put in all their fairness before the public, the indignation and the fright of the public would be so great that Parliament would not spend a month in session before a Bill would be run through to make provision for the real necessities of the moment. The Archbishop of Cashel provides £70 worth of milk yearly for the poor. It is administered by a Ladies' Guild. The people get it for nothing; but you would not get people every day to do what the Archbishop of Cashel does. From what I gather from Lady Mayo's evidence and from the representative of Lord Rosse, they have done a great deal in a philanthropic direction. Everyone is not asked to supply, or will not supply, cows for nothing, but these people are doing the best they can to provide milk at a reasonable rate.

3836. Neither of these schemes is philanthropic?—I understand. The third depot mentioned was in Carlow.

3837. Lady Mayo's depot is philanthropic in its objects, but is run on commercial lines. Lord Rosse had no intention of being philanthropic. He saw that the difficulty might be met, and started his enterprise for supplying the town of Ban?—Coming back to the English Allotment Act, I am glad to have brought out here, first in the action taken by Cashel in applying for its extension to Ireland we had the backing of three-fourths of the municipal bodies in this country. May I ask to put in as part of my evidence a letter which appeared in the *Dublin Freeman's Journal*, signed William O'Reilly. I do so, as Mr. Russell will not infer error in stating that the distribution of the land in Athlery solved all the difficulty—the people who got the land according to the statements made to him being the perfection of philanthropists, whereas as a matter of fact, they just turned out to be as selfish as others. The right way would be to give the land to a governing body, with strict trust attached, and for public purposes. The English Act possessed the great advantage that there could be no free sale and no sub-lettings, and when a man gets a farm from a local body, and when he is done with it, or gets rid of it, or is leaving the locality, he is to hand it up to the body from which he held it. I and Mr. A. M. Sullivan were the only two people in Ireland, so far as I could see, who were tooth and nail opposed to that system of sale, which is dragging in rack-rents at the back door. One of the great advantages of the English Allotment Act is that the land remains a public possession, subject to the orders of the public body, which itself will have to be very tightly bound. I need not recall the case of the Cashel Commissioners and their tenants, and what was done against my recommendation. I recommended in that case, just as I warned Mr. Birrell when he was giving the additional million pounds under the Lakeshore Acts, that he had better appoint proper inspectors and not have the houses jerry-built. I am glad to see that Judge Bodian in Chancery spoke out in this matter. So far for the public bodies, as distinct from the mere giving of land to "lads" in the town who were represented to be same, though some of them are dark-devoted sinners; and it is perfect nonsense to talk of the extension of the Athlery scheme to other towns. The difficulty will be met by the English Allotment Act. So far as the rural districts are concerned, it will have to be met by a similar Bill. I have in this letter of Mr. O'Reilly, because it is proposed to extend the Athlery scheme to all Ireland as an easy way out of the difficulty; and as it is no way at all out of it, I think it is absolutely necessary that the letter should appear on the Minutes, so that by and by you will have it before you.

3838. I am afraid that would be hardly regular for this reason—the witness who expounded this scheme came up before the Commission to give his views on this particular question, and he suggested that this would, in his opinion, be a means whereby the difficulty could be met with regard to towns. If we were to put on the record a letter appearing in the public press, which is an ex parte statement by an individual, we would be placing him in a position of pre-eminence as compared with the gentleman who made the original suggestion, and who came before us and was prepared to be cross-examined on the views he put forward. If you think it important that the views contained in that letter should be laid before this Commission, the proper course, I would suggest, would be to invite the writer of the letter to appear before the

Commission, and to give his reasons for the views he put forward in that letter. Then he will be in a position of perfect equality with the person who made the original proposal?—I have no power to invite him to give evidence before the Commission.

3839. We can get the Secretary to communicate with him?—I have at once to your ruling. If you announce from the chair that you are willing to receive his evidence I am satisfied.

3840. We could take his evidence at another centre. That would be the fairest course to the originator of the scheme and to his critics?—That entirely meets the case.

3841. Would you be good enough to resume your evidence, Dr. Lathan, at the point at which we stopped before luncheon?—Yes. We will go on to the point in connection with the purity of milk.

3842. Have you quite finished with regard to the question of supply?—Yes. I do not intend to go further than to state that you will have to make use of the principle of compulsion. That from some points of view may be undesirable, as it will be calculated for the moment to cause irritation, but I think that after a while people will be surprised that matters settled down so easily and so advantageously. There is nothing so difficult to get at this moment in a farmer's house as milk. You will get almost anything but milk, at any rate in the majority of them; and it is my firm conviction that if they were assembled to see the poor properly supplied there would be an improvement in their own condition. Sir William Butler was constantly harping on that—the change in the condition of the people. The farmer's own families are, after sundown, reared on the slop-ty tea and white bread that the poor are fed on. My conviction is that there is an undue supply of non-nutritious food consumed, and it would be an advantage if the people considered the food that is valuable as distinct from the food that is not valuable, but has become customary. Now, with regard to the supply of milk, I have fought shy of entering into particulars as to how it is so difficult for the poor to get milk, because I am satisfied it is a complex matter, and I cannot supply all the reasons, because I do not know them, but certainly one of the reasons is the expensiveness of labour, and of handling and managing the milk, and you would have to consider questions outside the pure milk supply in dealing with this matter, and one of the questions that would have to be taken into consideration would be the great gulf crossed between the employer and the employee by the residence of the poor working people in the towns. I have always opposed the undue building of labourers' cottages in towns, because I consider the poor should be translated out to the sphere of their labour, under the purview of those who employ them, and the old associations—the rendering of which is responsible for a great many of the serious ills of the present day—would be renewed, and, in addition, the people who benefit by labour are the people whose property should pay for the residences, and, of course, the residence costs more than is paid in rent. Having regard to the way the cottages are being built, I think the expenses will be found very high by-and-by. If the labourers are brought out into the country, in the course of time you will have the old kindly feelings that subsisted between employer and employee rekindled, and a better class of labour will be provided, and farmers will not get rid of the dairy, which is a very complicated business. It is simple to buy stock and sell them again. That is not the story with the man who has a number of cows. He is on tenter-hooks from January to December, watching various aspects of the whole business, and that is why a great many people have gone out of the business; but I never saw a large number of people getting out of dairying that were not sorry for it, because although the profits might not be enormous, they are secure. The dry stock trade is a gamble.

3843. Do you not think that it is one of the difficulties in the solution of the problem of supplying milk to the poor, the uncertainty of the demand?—Yes, but that would come if you had compulsion, because the quantity that would be required would be known, and provision would be made for the supply. At the present time the farmer prefers to send it to where he would be sure of his milk being taken; so you are quite correct in saying that the uncertainty of the sale is a large factor in not having the milk to buy.

3844. What *measures* would you adopt to have uniformity of demand, because we know that the poorer portion of the population are not always provident in their management, and whereas money may be available some days at the week, it may not be available on others?—I must admit that there are difficulties.

3845. Don't you think that is a serious difficulty?—It is one of the great difficulties, no doubt.

3846. And don't you think the conditions I indicate do exist—the want of continuity of demand in the supply to the poor?—If you managed through the municipal body in the town and through the Rural District Council in the country, the surplus milk could be turned into butter or cream or sent to Dublin, and in that way there would be no lack of sale for the surplus milk.

3847. On the question of price, you already touched on that. Do you think that in order to secure that the working population should supply to their children a reasonably adequate milk food, some help should be given to cheapen its price in order to secure its more general use?—Well, you know, you drop then into socialism altogether, and I am not a socialist. I suppose until they get into the habit of getting the good article that they should be helped, but as a permanent thing I would not tax the State or community to provide such an essential article of diet for the poor. I suppose if the very poor have not the means for buying the milk that they should be helped. I would keep close of warehouse doors if I could help it, but if it could not be helped I suppose they must get assistance.

3848. What I want is an expression of opinion whether you consider the matter of such urgent importance to the community at large, that a subvention should be given in order to secure the more universal use of milk as a food for infants and growing children?—I suppose the most correct thing would be to say yes. I suppose it would be impossible to say no, inasmuch as we start with the assumption that milk is essential.

3849. Do you believe that it is essential?—I believe it is, and I believe in some cases that the means are not there in the case of the poor to purchase it, and if you acknowledge that, it follows that you must supply them somehow. There is a further matter that I have to call your attention to. I started here with discussing only distribution. I did not go into the composition of milk and sundry other matters which have been dealt with by experts, but I would like to refer to the method of dealing with people who are convicted of adulterating milk. I am not in the habit of pouring broadsides of compliments into anyone, but I must say that I was charmed with Mr. Russell's manly evidence with regard to the judicial corruption in connection with adulterated milk, and my experience, and, of course, the aggressive experience of other people like myself, is that an amendment of the law is necessary. If you want pure milk you must have the milk analysed from time to time. I had intended to call attention to a difference of opinion which occurred ten years ago between two analysts, which led to a reference of the case to Somerset House, but within the last ten days an identical case turned up, where Mr. Thorp on the one side and Sir Charles Cameron on the other, held diametrically opposite views.

3850. Has the issue been decided?—It has been discreetly kept from the public; I looked very carefully in the papers, and I could not find it. With regard to analysis of milk, police inspectors told me, I will not say to what analysis the samples were sent, but they told me that they were tired of sending them, and that though there was reason to believe that the milk was anything but orthodox, they were invariably sent back with the statement that the samples were all right. I do not say to what analysis the samples were sent, but that was what was told me by an intelligent inspector under the Food and Drugs Act. We ought to have one analyst, and I think your General Council of County Councils, of which you are Chairman, would be the one elected body in Ireland to select that man. He should give all his time to his business, and, of course, he should be properly paid, and as there ought to be an appeal, I would suggest that a Court of Appeal might be provided by sending the case to Somerset House, or to professors of chemistry in

Dublin, three or four of the number, who would act as a Court of Appeal. I am of opinion that, of course, there ought to be a Court of Appeal so as to make it impossible for any injustice to be done. Now with regard to the point raised by Mr. Russell and so courageously spoken to by him, I have to state that the present system of presentation is more than defective, and I think there ought to be a right of appeal to the County Court Judge considering part of the method of dealing with adulteration of milk. I will say nothing about the local courts, not desiring to fling any stones at anyone except in the kindest possible way, but I will say that an appeal to the County Court is necessary. I gave evidence many years ago before Mr. Lawson's Commission on sanitary matters, and I urged very strongly that an appeal should be allowed in all matters, and, in fact, that anyone interested as apart from the public body ought to be allowed to go into Court himself. A couple of years after that, it was incorporated in the sanitary laws. I used the right myself when I compelled sanitary recondemnation to be added to a number of houses, and the result was very satisfactory indeed. With regard to that, I do not think, so far as I recollect Mr. Russell's evidence, that he referred to a remedy. My remedy would be to allow an appeal to the County Court. With that and the provision for the analysis of the milk I referred to, I have nothing more to add dealing with milk itself. I think this Commission, which I suppose was due to her Excellency the Countess of Aberdeen, will do a great deal of good, if the recommendations are not put into a pigeon hole and no action taken upon them and no provision made for the unfortunate people within reasonable time. I am prepared to put my own proposals second to Mr. Russell's. When the Council resolution in favour of the extension of the English Adulteration Act to Ireland was passed, I did not get them to send it to Dublin, Belfast, and other places, because I did not think that ethics like them would ask for the powers contained in the Act, but I feel afterwards that London took powers under that Act. That is all the evidence I have to give, and I shall be glad to answer any questions that may be asked of me.

3851. You have heard reference made this morning to the question of housing dairy properties?—Yes.

3852. Do you think that would be a useful provision in order to secure the purity of the milk?—I do, but I must tell you that I am of opinion that the whole milk question will have to be handled with a great delicacy. I do not, of course, say that dirty vessels should be overlooked, but it would be quite possible to drive the production of milk altogether out of the market if regulations were made too drastic, and the whole system of inspection and management will have to be touched with gingerly hands. Considerable discretion will have to be exercised in the introduction of reforms. This dairy business is a very delicate concern, and there has been a driving out of trade already, and out of the production of milk, for want of reliable hands, and if you add over-stringent restrictions in the way of inspection you may hamstring the whole business.

3853. You think that considerable discretion must be used?—Yes. I would not say that things should be deliberately overlooked, but as far as I could I would take things as quietly as possible. There is another matter. The people who know most about the prosecutions for adulterated milk and the operations of the Cowsheds Order would be the Constabulary authorities, who are the officers under the Food and Drugs Act. I got a great deal of information which I have not used, but which I have at home in notes, from a very intelligent man who was one of the inspectors under the Food and Drugs Act. I asked him, "Could you not come up yourself and give evidence before the Commission, as I do not want to use the important matters you have mentioned to me as my own evidence, and if there is any credit to be got out of the matter it should be given to you." This man left the impression on my mind that there might be some difficulty with his superiors in regard to his giving evidence. If the Commission invited such evidence there might not be any objection to its being given, and I think it would be very desirable to bring forward the intelligent man I have referred to to give evidence on diverse points on which I have not touched, because I did not think it fair to him. He is a very intelligent man, and does his business very well, and all I can tell you is that there are several points he

supplied me with that I think the Commission ought to be placed in possession of. I would suggest that the Commission should get the permission of his superiors to enable him to give evidence, and if you do you will not regret it, because he has got a vast amount of valuable information that it would be advisable to place before the public.

5854. Do you suggest that the Constabulary might be used for some purposes in connection with the inspection necessary to carrying out the Orders?—I do. They are more independent. The officers that are inspecting those dairies and milk shops are dependent on the Boards that appoint them.

5855. I quite follow you. In the first place, do you think that the universal application of any Order all over the country ought to be insisted upon?—You see that all the Orders are, in the main, the outcome of scientific knowledge on the part of the veterinary department, and are based on common sense, and I am afraid they must be carried out.

5856. I do not think you quite caught my point. What I wanted from you was an expression of opinion as to whether it would be desirable that the Orders made by the Local Government Board for the control of the milk production and supply should be made universal over the entire country, and not fitfully, as at present?—As they are founded on plain common sense they ought to be carried out.

5857. And do you think it would be possible to have them carried out in an efficient way and with uniformity through the local administration, or would you be in favour of having them controlled from some central governing body?—I think they would have to be controlled from some central body, and the proposition that your Dublin people should have power to inspect the local dairies would touch the vendors on the ear, and bring things to a point.

5858. Do you think it a reasonable contention on the part of those controlling the public health in the city that they should have power to visit the country districts from which a very large proportion of their milk supply is drawn?—Yes. They ought to have the power to ensure that the milk they get is clean and of good quality, and they cannot ensure that within the four corners of the city. There is another matter. There is a proportion of milk that is naturally, without any adulteration at all, of so low a quality, that questions may arise between differentiating between it and good milk that has been adulterated. That is a point which I would refer to as very perplexing.

5859. You are not the only witness who referred to that, and we had evidence from a witness that he could prove that a certain cow had yielded milk persistently, which, if sold to an ordinary consumer and subjected to a test, would have been certified as adulterated?—That must be left after all in the hands of the analysis; they must find the means of dealing with such a case as that. The fact of giving grains to cows produces an immense yield of milk, but it might be of a very inferior character.

The CHAIRMAN.—We are on the borderline of controversy on that particular question, because it has not been clearly established whether the feeding given to the cows will influence the quality of milk. It is admitted it will largely increase the quantity, but whether it increases the quality is in dispute.

Mr. WILSON.—Not so far as grains are concerned. They are admitted to lower the quality and increase the quantity. That is widely recognised.

5860. The CHAIRMAN.—With regard to the testing of those who are engaged in the milk trade, do you think it would be an unreasonable imposition to have all of them subjected to the Widal test, or do you believe in the Widal test?—Yes.

5861. Do you think that it would be an unreasonable imposition?—I do not think it would, having regard to the way that typhoid fever is spread.

5862. Have you information from your own district, or have you heard of any cases in which the dissemination of disease was directly caused by an impure milk supply?—Well, I am not able at the present moment to answer that positively, but I would say that it is a thing that is quite certain, though I cannot lay my hand on a case although I am in charge of a fever hospital. There is no doubt of its possibility and probability.

5863. If there is an epidemic of fever in any of the districts sending patients to the hospitals, do the local authorities make any inquiries as to the cause of the contagion?—Yes, and they are kept up to their p's and q's by the Dublin people.

5864. Dr. MOOREHEAD.—Your district, is it chiefly agricultural?—I have no district, unfortunately. I am not in the happy condition of a dispensary doctor.

5865. The neighbourhood in which you reside, is it an agricultural country?—The great majority of acres are in grass.

5866. Is there much milk produced in it?—A good deal, but nothing like what it was. Several large dairies have been dispensed with on account of the expense and of the unprofitability of trade.

5867. There is a large quantity of milk produced in it, however?—Yes.

5868. Is that sent out of the district?—There is a creamery in the town, and creameries within two or three miles, and the Workhouse and County Infirmary use a lot of milk. Mr. Hoadly, the proprietor of the creamery, exports cream and butter largely.

5869. And there is a scarcity of milk among the poor people?—The same as elsewhere. I have been making inquiries from one of the leading local traders about the purchase of condensed milk, and he told me that the poor people come to him for it.

5870. Is there a large trade in condensed milk in your district?—I cannot tell you, but I believe that there is a good deal of this artificial milk sold.

5871. The use of that would be conclusive evidence of the scarcity of fresh pure milk?—I cannot answer for that. In the paper that I read before the Medical meeting I instanced the case of a man who had seventy-five cows, and the very week people that that man had could not get a drop of milk.

5872. What became of the milk?—I cannot tell you, that was twenty-five years ago. He evidently manufactured it into butter, but his employees could not get a drop of milk, and he had seventy-five cows. I mentioned that for that reason, because it dispensed of the fallacy that you have only to increase the supply in order to provide the poor. If you had ten times the amount it would flow through the same channels as it does at present.

5873. What is the ordinary price for milk in your district?—I pay 8d. a gallon all the year round. I do not want it all the year round because I have goats. I will say something about these goats as they have been mentioned.

5874. Eightpence is rather a low price for milk. Do you think that it could be produced commercially for that?—They say not.

5875. Have you had tuberculosis in your district?—I do not think that we have had a disproportionate amount. There are two points I would like to refer to, and those are about the goat and the Kerry cow. In the first place with regard to the goat, I am the happy proprietor of goats myself, and greater villains never stood in shoe leather.

5876. The CHAIRMAN.—Or bare foot?—Or bare foot either. These goats will be dry for five months this year, and usually they would be dry for four months, and those four months would embrace the winter season when milk is scarce. Goats cause the maximum amount of mischief, and I tell you that I am bothered with plans to defeat the thieving propensities of my animals.

5877. Dr. MOOREHEAD.—Do you leave the goats loose?—We are distressed with spandling them, and they do mischief notwithstanding all my paternal surveillance.

5878. Do you bother them?—It is a case of never ceasing "botheration."

5879. Do you use the harmless variety?—I have the horned breed. I got one from the mountains of Mullerag, guaranteed to milk the maximum, and shaggy that never existed then that goat that ought to have been sentenced with peaty. She did not milk a quart twice a day.

5880. Is that a usual amount to give?—No.

5881. With regard to the milk of the goat, what opinion do you hold as to its value?—I think it is of a very superior quality. There is an exceptional amount of solids, and there is an acid called after the Latin name for goat. It is as good as cream, and better, I think, in tea.

3882. And has no unpleasant taste?—No. As to the Kerry cow, they would be excellent things in a way. A good Kerry cow will cost £10, and where would the money be got for buying cows for the whole of the labouring population of Ireland? The Kerry cow will be subject to the same insanterious to which the goat is subject—it will run dry for a certain number of months in the year. What would become of the poor during those months—months when the milk is scarce, and what about the feeding of the cows? You cannot feed them on the side of the road. I thought it a hardship that police should be persecuting people for keeping cows on the public road; but when an accident occurred to a valuable horse, and a man was thrown on the roadside owing to a collision with a cow, I thought the law more reasonable. You could not feed the Kerry cow on the roadside, or in the hall were or sent that the labourers have with their cottages, even if you turned it all into pasture. Therefore you would be headed by fresh difficulties when you had them—you would have to provide them with pasture and winter feeding, and to see that the people would not be without milk when the cow ran dry. Therefore I look upon that kind of thing as perfect drawing-room twaddle.

3883. Mr. WILSON.—I think you have already brought it out that this problem of the security of milk in the district with which you are familiar has been a matter of very long standing?—Yes.

3884. Your paper was written in 1887?—Yes.

3885. And the position to-day is very much as it was then?—I should say it is worse, because cows are less numerous than they were.

3886. Sir BREWSTER WOODHOUSE.—About what portion of children are nursed by their mothers?—I cannot tell you.

3887. You would not think that nine-tenths of them would be?—Well, I do not think so. I have not any actual figures.

3888. I take it you think that in most cases it is the right thing for the mothers to nurse their children?—In every case, except the mother is diseased.

3889. The CHAIRMAN.—Thank you very much for your interesting evidence.

WITNESS.—I only hope that there will be a beneficial outcome of your labours, and that your report will not be put into a pigeon-hole and left there.

The CHAIRMAN.—We can only rely on public opinion to see that that will not happen, Dr. Laffan.

Mr. THOMAS FAIR, J.P., CONTINUED.

3890. The CHAIRMAN.—I understand you are interested in land in Co. Tyrone, Mr. Fair?—Yes.

3891. You don't reside there?—Yes, for about five months in the year.

3892. Do you think there is any considerable security of milk for the working classes—have you any means of forming an opinion on that point?—So far as my own men are concerned, there is no security, because I provide them with milk or give them the grass of a cow. Those who are well enough off keep a cow.

3893. Do you know anything of the condition of the other labourers in your district who are not so fortunate as to be in your service—have they got similar facilities?—I think not. I think they depend on their neighbours.

3894. And the result is that they are not able to secure a continuous supply?—Not a sufficient supply.

3895. And that some people who may be financially able to purchase milk and desire to have it might not be always able to secure it?—That is so.

3896. You have strong views, I take it, looking at the summary of your evidence, as to the methods by which the cleanliness of milk could be secured?—Yes.

3897. Would you be good enough to give the Commission the benefit of your views on this particular question?—I am strongly of opinion that the first thing is absolute cleanliness, and second bottling, and I think that in milk used for domestic purposes the cream should be broken up in the milk so that under no circumstances could it be taken out. That, of course, is a mechanical process, but it is one that works fairly well under experiment. I may state that I have for many years been interested in the milk question, and have had many experiments carried out with a view of ensuring a fresh, pure supply that would be free from inequalities or deterioration during the period of transit between the producer and the consumer, and I believe I have a process which will secure this on the following simple lines:—(a) The thorough elimination of all solid particles which may be accidentally present; (b) the disinfection of all the large fat globules and their permanent diffusion throughout the milk so as to avoid any inequality in richness; and (c) heating in a carefully-adjusted preservative atmosphere under moderate pressure. The milk is not heated up to the pasteurizing point, and no chemical change takes place, which would affect the nutritive qualities or flavour, and no liquid or solid preservative is used in any way.

3898. Has it ever been carried out generally?—I am not aware, but it has been carried out privately, and it has answered the chemical test it has been put to, and there is no reason why the Department should not take it up. It would have to be done either by a large Company or by a Government Department.

3899. Does it lead to any deterioration in the food properties of the milk?—I believe not. That is a

debatable question. Some scientists say that it does and some that it does not. I think that Professor Thompson, when before this Commission, said that there was some subtle deterioration in the milk that could not be accounted for, but these trifles ought not to weigh with the making of some effort to improve the state of the milk, which at present is disgraceful.

3900. Have you formed any opinion as to what the costs of this process would be in the production of milk?—Given a creamery plant, the additional plant necessary, including bottles and corks, would be about £500.

3901. Mr. O'BRIEN.—About the cost of pasteurization plant?—Yes, about that.

3902. Does it take the place of pasteurizing plant?—Well, that I am not quite sure of.

3903. The CHAIRMAN.—Would your process render pasteurization unnecessary?—It is partly pasteurization.

3904. Except that the heating is not so high?—That is so.

3905. Mr. WILSON.—What is meant by the phrase "pasteurization"? I understood it to be the killing of bacteria? If the heating is not brought up to that point it has no claim to the title. What do you mean by "the pasteurization point"?—What I meant was that the milk did not taste as if it had been boiled. That was all I meant to convey.

3906. Is it heated to the point of killing bacteria?—I think so.

3907. Miss McKINNA.—You don't know to what heat it is subjected?—It is under 130 degrees Fahr.

3908. For how long is that kept up?—For about half an hour. That is practically pasteurization.

3909. The CHAIRMAN.—I rather take it that you are of the opinion that whereas this process would secure practically the effect of pasteurization, it would not be subjected to the injuries which pasteurization is supposed to inflict on the milk that would be subjected to the process?—I believe that the process will simply preserve the milk, kill a certain number of aquatic bacteria, and that the milk will keep indefinitely.

3910. Of course, that is one of the strong views in favour of your scheme—the keeping properties of the milk?—Yes.

3911. It would undoubtedly minimize to a considerable extent the difficulty of providing milk in remote districts?—Certainly.

3912. Have any tests been made to determine the keeping properties of milk so treated?—If I can believe the managing director of a large Steamship Company, the milk has gone to South America and back again and it was drunk by the directors, and they say that, as far as they can judge, there was nothing wrong with it.

3913. There is no reason to impugn the accuracy of their statement. It is not an interested statement in any way?—No.

5914. Is milk procured that is treated in this way in this country?—No.

5915. In any country?—In England.

5916. Is it used by such arrivals as you have indicated, and has it been found to keep a sufficient length of time in order to ensure its being fit for food a month after it has been subjected to the process?—That is the only instance I know of—the milk that was sent to Buenos Ayres. I am not aware that there is any process in operation at present.

5917. Is it only in the experimental stage?—Yes.

5918. Mr. WILSON.—Milk treated that way has reached beyond the experimental stage in Holland. It is shipped to Java and Hong Kong for the use of people with young children.

Mr. O'BRYEN.—What is the name of the process?

Mr. WILSON.—The makers are the Vasea Milk Company. I don't know that the actual machinery used is the same, but it is on the same principle.—It is a French machine I use.

5919. It was not quite with the intention of rendering its export possible that you took up this process, but rather to guard against the possibility of milk of various qualities being subjected to inspection, and the possibility of samples taken under unfavourable conditions, subjecting the vendors to prosecution?—That is one reason; but my chief object was to try and benefit the local creameries. In this country creameries are hardly able to live. The farmers have sent a great deal of money in them, and they are looking around for a means of selling their milk at a profit. The amount of waste that goes on is terrible, and if anything could be done to stop that it would help them greatly.

5920. Do you suggest that it would be another outlet for creamery industry to embark on?—Yes.

5921. And possibly in some instances it might be more profitable than butter?—Yes.

5922. It would have the effect of rendering it possible for shopkeepers to stock milk as they do tea and cocoa, and retail it to the ordinary purchaser just as they might other necessities of life?—Yes, and that the consumer would get all his milk with all the rich cream in it.

5923. You think it would ensure uniformity of sample, and that parts of the milk would not be richer in cream than that which was supplied to another customer?—I believe that is absolutely correct.

5924. Could you give the Commission any estimate of the cost of carrying out this process?—The principal expenditure would be the Bommaginder, and that would depend on the amount of milk treated; but the ordinary local creamery would want a bottling machine, a sizing machine, and one other machine, and it ought not to amount to more than £300 or £400 for the average-sized creamery.

5925. With regard to the power necessary to work it, have you made any estimate?—No; all creameries would have either engine or water-power.

5926. The power at present in existence in creameries would be sufficient?—Yes; an average engine ought to be able to drive the machine. A 20 h.p. engine would be quite sufficient for the purpose.

5927. Mr. O'BRYEN.—That is very high for a creamery. In my own creamery, where we have to sterilise, and where we separate in the summer a little over 6,000 gals. a day, I think a 20 h.p. engine is all that we have. I do not think myself that is enough. A 28 h.p. engine, I should say, would be a good deal higher than that used in the average creamery.

5928. Sir STEWART WOOLCOCK.—I suppose when it would not be working the creamery it might work this process?—Yes.

5929. The CHAIRMAN.—Has any proposition ever been made to any creamery manager or committee to embark on this process?—I have asked Cortin creamery in Co. Tyrone, and they are all very keen on the undertaking, but the usual answer is that they have no money; and as nearly all the creamery managers about there are trained chemists on loan on their work, a small grant of money sufficient to equip them would not be badly spent.

5930. Mr. O'BRYEN.—I thought this process was in a state of experiment?—That is all. Let them experiment on it.

5931. Is it only experimental as far as the commercial side of it is concerned?—Yes. The late Mr. Cleve told me he was greatly interested by it, and that if the process was commercially right it would revolutionise the milk trade of the world.

5932. Sir STEWART WOOLCOCK.—Would it cost £200 or £400 to introduce it where there was a 28 h.p. engine already?—I do not think they ought to embark on it.

5933. Lady EVERARD.—Is there anything added to the milk by this process?—No, there is no preservative of any kind used.

5934. Has the invention been patented?—Yes.

5935. Is it your own idea?—I have got the patents for it in my own name.

5936. Have you ever approached the Department of Agriculture with regard to it?—I did at a general way. I was too tongue-tied about it, perhaps.

5937. Sir STEWART WOOLCOCK.—Is it the same heat that is used as in pasteurising?—I do not know anything about pasteurising milk, but bottling is the serious thing. If the bottle is not properly cleaned and sterilised there is, of course, danger of contamination.

5938. Would the ordinary cork answer for the bottle?—No. The German beer bottle cork would be the most suitable.

5939. Lady EVERARD.—I think you spoke about the separated milk. Can you have separated milk from this process?—Milk that is for household use, after it has gone through the three processes—drawing, pasteurising and sizing—cannot be separated. But milk that is for making butter, cream and cheese goes through only two of the processes—drawing and pasteurising—and can be separated.

5940. Then it is possible to obtain separated milk by your process?—Yes, and that I look upon as a very great asset of the farmer. The separated milk you can buy from the creamery at a penny a gallon, and what I would hope to do would be to treat it and flavour it with some fruit essence and sell it as a beverage. It would make a most agreeable drink, far better than ginger beer or lemonade. Buying it for a penny a gallon—sixteen half-pints—you could sell it for a halfpenny a half pint, and have a reasonable profit, in which the farmers could share.

5941. Could you make butter from the milk in this process?—Not if the milk has been passed through the filter.

5942. You cannot make butter out of the milk made in this way?—No, it is only for domestic purposes.

5943. The CHAIRMAN.—In fact, when milk was plentiful in the summer you could store it for the winter?—Yes. That is my idea.

5944. That would be very valuable?—Yes.

5945. Dr. MOONHAM.—The object is to give milk with all the butter fat to the customers?—Yes, so that it could not be taken out, not even centrifugal force could take it out.

5946. You have tested it as to its keeping qualities?—Yes.

5947. Is there any alteration in its flavour?—It is a little thick—at least it remains on your palate, but I think that is owing to the cream that remains, but beyond that there is nothing worth speaking of.

5948. The CHAIRMAN.—The flavour is not impaired?—No, unless through carelessness, and then the bottle is returned to the distributor by the customer.

5949. Is the distilling machine part of what we may call the pasteurising machine?—Yes.

5950. Both go together?—They are separate machines.

5951. And the cost you estimate includes the entire additional plant?—Yes.

5952. The distilling plant and the pasteurising plant?—I assume I start with the creamery plant, and that includes the cleansing apparatus and the engine.

5953. Lady EVERARD.—I don't quite see how you can make separated milk from your process?—We will buy the separated milk and then treat it as I described. We cannot make it.

1954. Dr. McCREADY.—Do you mean that your apparatus is only an addition of £500 to the plant in an ordinary creamery?—That is very hard to answer, because it would depend on the quantity of milk treated. The thing is to create a milk industry in little rural districts.

1955. This milk is essentially for the consumption of the people about you?—Yes. For instance, I would like to write to a creamery manager and say, "Send me up my milk in bottles and deliver by the railway," and the empty bottles could be returned.

1956. You have this apparatus in working order at present in creameries, have you?—There is none of this plant working at all now. I got an introduction to the general manager of a large milk distributing firm in London, and I wanted a corner in his yard to make a demonstration, and he refused me, but he told me he believed I was on the right road, but that the change would not come in my time, so I dropped the matter. I thought there was no use in fighting against all the distributors in London.

1957. Mr. O'BRIEN.—When you open a bottle of this treated milk how long will it keep fresh?—If it has been properly treated it will keep four days after it is opened.

1958. If it could be sold at a reasonable price that would be a great point for poor people?—Yes.

1959. Because, of course, your small bottles cost you proportionally more than your larger ones?—Yes.

1960. Mr. STEWART WOODHOUSE.—I take it that the plant has not yet been constructed for this process?—All the machinery can be got at once. I can buy all the machinery by telegram.

1961. I take it a royalty would have to be charged for the use of the patent?—Yes, and give the creameries a licence to work it, and if they want it immediately cannot the licence.

1962. Lady EVERARD.—If the Department were willing to make an experiment, how long would it take them to do so?—It could be done in a month.

1963. The CHAIRMAN.—I suppose all the plant could be got on hire for the purposes of experiment?—Yes, but I am not quite certain about the fixing machine, because that is a French invention.

1964. Are there different patents covering the different processes?—My patent, I think, covers the whole thing, but I would not advise the Department to rely on the patent. You never know what they are until they become valuable.

1965. Miss McNEIL.—I did not gather whether ice was necessary for the keeping of the milk?—It is always well to keep it in a cool place.

1966. The CHAIRMAN.—But it is not prescribed as part of the process that it must be kept?—No.

1967. Miss McNEIL.—The milk that was kept for four months, where was it kept?—In an ordinary larder.

1968. Without any special care?—Yes.

1969. The CHAIRMAN.—And it went across the equator as well?—Yes, and came back.

1970. Mr. O'BRIEN.—Has this process been seen anywhere—have you actually demonstrated it?—Yes, in a very rough way.

1971. You have not had the complete engine and plant and everything running?—No. The experiment was done in a very crude way.

1972. Do you describe anywhere the process the milk goes through?—I did not describe it because I

did not think the Commission would have gone so fully into the matter, but I can give all the particulars to the Department.

1973. You say you could get all the machinery necessary by telegram?—Yes.

1974. It is only a combination of various things?—Yes.

1975. Mr. WILSON.—No one has yet hit upon your precise combination of existing machines?—No. My patent covers all the machinery that is necessary for the working of the process. They are all separate machines.

1976. There is no machine of your own invention?—No. One is the invention of a Frenchman—it is the best fixing machine that I have come across.

1977. Mr. O'BRIEN.—What is the particular point of your patent—is it the idea that you have patented?—The idea and the mixing.

1978. Lady EVERARD.—You have the patent right for the United Kingdom?—Yes, under the new patent laws.

1979. The CHAIRMAN.—Is the great point in the treatment the destruction of the fatty portions of the milk?—That is one of the great points.

1980. Then there is the question of the pasteurization?—Yes.

1981. And the question of bottling?—Yes—these are the three; but I think the greatest of all is the breaking up of the butter fat in the milk so that the cream cannot be taken out.

1982. Mr. WILSON.—The first stage is running the whole milk through the separator?—A strainer.

1983. The next thing is to emulsify the milk?—Yes.

1984. And the third is the process of pasteurizing—the killing of bacteria?—Yes.

1985. And the fourth is the bottling?—Yes. The best bottling machine is only £80, and it bottles 120 bottles in a minute.

1986. Dr. McCREADY.—Do you put the milk through the separator?—Simply for cleaning purposes.

1987. There is nothing but dirt removed out of it?—There is a most extraordinary fluid taken out, and if you put it into a bucket of water it does not discolour the water, and no one has explained what it is.

1988. Mr. O'BRIEN.—Does it poison the water?—I don't know. It has been proved that the refuse of a creamery poisoned all the fish in a river in Western.

1989. Mr. WILSON.—What is the meaning of the phrase "heating in a carefully-adjusted preservative atmosphere"?—I will demonstrate that in the Department if they make the experiment.

1990. Lady EVERARD.—If the Commission ask the Department to make the experiment would you also then to do so?—Yes, most willingly, and that is why I have decided to come here to-day in the hope that the Department will do so.

1991. Dr. McCREADY.—Would this process add to the cost of the milk?—I can find out everything in a couple of days. I would not like to state anything unless I was absolutely sure, but the cost of the homeopathic machine would depend on the size, and it varies from £100 to £1,500. I can give all the information to the Chairman.

The CHAIRMAN.—I would be glad if you did so, because it would strengthen the hands of the Commission in bringing the process under the notice of the Department.

Mr. JOHN FLEMING examined.

1992. The CHAIRMAN.—Are you Dairy Inspector in North Dublin Rural District?—Yes.

1993. Would you kindly tell the Commission what exactly the custom is with regard to the inspection in your district?—I have seventy dairies in North Dublin, and I inspect these at least once every month, and oftener if necessary. Where a man is inclined to keep his premises very dirty I call very often.

1994. In the first instance, you make an inspection of the hyge to which the cows are kept?—Yes.

1995. And examine the conditions under which the cows are kept?—Yes.

1996. Whether they are sufficiently well looked after, and if they are kept in a cleanly condition?—Yes.

1997. Whether the manure is kept at a proper distance from the hyge?—Yes.

1998. Do you make any inspection to ascertain what condition the milkers are in?—Yes. I ask that they have soap, water, and a towel to wash their hands. They never know when I shall call.

5000. You visit just at will?—Yes.
5001. And in order to ensure that they are never able to determine when you won't be there?—Yes. I have a very big district.
5002. How many cows are there in those seventy districts?—Over a thousand.
5003. Do you make an inspection of the animals themselves to ascertain what condition of health they are in at the time they are yielding milk in the district?—That is for the Veterinary Surgeon.
5004. Do you ever direct his attention to the feet in any case, that you saw a suspicious cow?—Yes, a wasted cow or one with the udders dirty or diseased. I report to Mr. Richardson.
5005. So that he is immediately on the track if you found in your inspection that anything was wrong?—Yes. I report everything I see that is wrong. Mr. Richardson gets a copy of my report.
5006. You send your report to the Council, and a copy of it is sent to the Veterinary Surgeon?—Yes, and another copy to the Local Government Board.
5007. Have you ever instigated prosecutions?—I have, one.
5008. For what?—That was against a man for not having his dairy registered.
5009. Have you heard the suggestion made that it would be desirable to issue licences, and what do you think of it?—So far as my district is concerned, I find that the cow-keepers do anything I ask them to do. Of course, there are some people with antiquated ideas, but they are beginning to know that it is not like old times.
5010. Do you see any necessity for licensing cow-keepers in your district?—Well, I think as far as I can see the Dairies and Milk Shops Order is very strict as it is, and I believe it would put some people out of business, if the restrictions were made severer.
5011. Has the administration of the Order in your district been responsible for limiting the quantity of milk available?—Yes, as a lot of people would sell milk, but they are a bit nervous of getting registered.
5012. Fencing the conditions that would be imposed?—Yes. In the case in which I prosecuted they gave up the sale of the milk rather than register.
5013. They were not selling milk on a large scale?—No, only about three or four gallons a day, but still it was a convenience to the people of the district to get it.
5014. And a hardship to some of them when this sale was abandoned?—Yes.
5015. And made it more difficult for them to get a supply?—Yes.
5016. Do you know in your district whether or not the poor people are unable to get a supply, even when they have money to buy it?—I do not think so.
5017. Is there any portion of your district in which it is impossible for the head of a family, having a number of children, to purchase milk and could not get it for money?—I can say that in Balgriffin and Castleknock milk is scarce. There is no registered dairy in Arana.
5018. Where do they get their milk supply from?—I don't know, except they get condensed milk, or from passing ones coming in from Cookoo.
5019. They don't sell, I think, as a rule?—I believe they would stop to sell to anyone who is able to buy it continually.
5020. I mean they don't sell promiscuously?—Oh, no. In Finglas there are fourteen dairy cows that go out twice a day, and they won't stop for a man who buys a pint of milk to-day and none to-morrow.
5021. But if there was a continual demand they would be willing to sell even in small quantities?—Yes.
5022. The variation in the demand is one of the difficulties?—Yes. I think it is purely and simply that the poor people might not have the money to buy it.
5023. And the result is that they are sometimes obliged to do without it?—Yes, and they have to buy the condensed milk.
5024. That costs money?—I often ask the people the question why they buy it, and they say it keeps longer.
5025. If they could procure fresh milk you think it is very unwise to purchase condensed milk?—They

- don't have the money, and when they want milk they cannot get it, and they have to buy condensed milk.
5026. Lady Eversham.—You say you consider that one of the reasons why the supply of milk is scarce is that the poor have not always the money to buy it?—Yes.
5027. And you think if there was a regular demand that they would be able to get a supply?—Yes.
5028. Are there many goats kept in your district?—In one Electoral Division there would be about 40 goats, but they are a great nuisance to the district.
5029. Are they the old Irish breed?—Yes. They are kept by the poor of the district, and they feed promiscuously on the road, and are minded by the boys and girls after school hours.
5030. They have not any foreign breeds—the Toggenburg or the Anglo-Nubian?—No.
5031. Do you think it would be possible to introduce a good sire into the district?—I know as the Finglas district they are very fond of goats.
5032. You think it might be possible that if a good sire was got they would take advantage of it?—I think so.
5033. Is there anyone in the neighbourhood who would keep one?—I cannot say that, because the farmers particularly are against goats.
5034. These are hornless goats?—I understand.
5035. Dr. Nicolson.—Do you attend any fairs in your district?—No, there are no fairs in my district.
5036. You don't go to the Dublin Market?—No.
5037. But the regulations of the Dairies and Milk Shops Order are carried out in your district?—Yes.
5038. And you notice an improvement?—Yes, a vast improvement.
5039. Is there a good deal of severity in your district?—Not a good deal. I would say there is some.
5040. They have to buy condensed milk?—Yes.
5041. Mr. Wilson.—You have, I suppose, authority over cows that come out from the city into your district during the summer?—I don't think so.
5042. In point of fact, you don't do anything in connection with them?—No, I won't be twelve months appointed until next June, but I know it was not done.
5043. So far as you are personally concerned and your Council, you take no responsibility for the cows that come out to graze in your district in the summer?—No.
5044. With regard to diseased cattle, have you discovered any in your district?—That is the work of Mr. Richardson, the veterinary surgeon.
5045. You are the first person who comes in contact with the cow that is ill?—Mr. Richardson is as often in the district as I am. If I find any "pieing" cattle I draw his attention to them.
5046. Can you give us an idea of how many of these you have discovered and reported on?—Only four.
5047. Out of the thousand?—Yes.
5048. Practically you find them in a satisfactory condition?—Very.
5049. Lady Eversham.—You say that you don't inspect the cattle that come out from the city in the summer?—No, I don't.
5050. Mr. O'Hanley.—You don't inspect the cattle at all—you only inspect the houses?—I have to inspect the cowshed, and also the cow, to see that it is properly cleaned and that the udder is clean.
5051. What do you do during the summer when the cows are on grass?—We have a lot of work to get the dairy utensils and cans clean in the districts themselves, and my attention I require to be done I have to get them done when the cows are out on grass, and I find it is easier in the summer than in the winter. I have to get the attentions done while the cows are out.
5052. You don't know at all whether the cows' udders are clean when they are out in the field?—No.
5053. Now in what sort of condition the people milking them in the fields are?—From personal experience I know.
5054. It is not part of your business?—I don't think so.

Mr. JONAS PASEO.—28th January, 1912.

6054. With regard to the cows that are sent out from Dublin, you cannot tell whether they are properly looked after and cleanly milked when in the country?—I cannot answer that question. I don't know of any one that inspects these cattle.

6055. The owners say that their men have all the facilities that are necessary for cleaning their hands; but, on the other hand, we have had some evidence or hearsay that it was shockingly bad—that the men sleep under the carts that bring the milk out, and that sort of thing?—I would not go so far as that.

6056. The CHAIRMAN.—Is it not really a fact that very indifferent provision is usually made for the dairy boys when they go to the country?—Yes.

6057. And that they live under conditions that are certainly not conducive to cleanly or regular habits?—

Yes. I cannot say that for the people living in my own district.

6058. I am talking of those who only pasture their cows in your district in the summer—is not that the condition of the dairy boys who go out?—It is, sir, that is so.

6059. The cow-keepers usually give them some dismantled house, and no furniture?—That is a fact.

6060. There is really much to be desired?—Yes.

6061. Mr. O'BRIEN.—You don't have to report on that?—No, when they are not my own cows.

6062. It would not come within your province to see the conditions under which these men are housed?

—No. I think it would be more or less the Sanitary Officer's duty.

FUTURE SITTINGS OF THE COMMISSION.

6063. The CHAIRMAN.—It may be of interest to the public generally to learn that the Commission have decided to visit the following centres. They propose holding a Sitting at Belfast, beginning on the 13th February, and continuing as long as may be necessary, to take the evidence of the witnesses that attend before

the Commission there. They then propose to visit Cork, and subsequently Limerick, Galway, Nenagh, Londonderry, Killybegs, Sligo, Castlebar, Mullingar, Wexford, Kilkenny, Tullamore, Waterford, Tipperary, Slibbereen, Trillick, and Ennis.

The Commission thus adjourned to Belfast to the 13th February.

SEVENTEENTH SITTING.—TUESDAY, 13TH FEBRUARY, 1912.

The Commissioners met at the City Hall, Belfast, at 11 a.m.

Present:—P. J. O'NEILL, Esq. (Chairman); LADY EVERARD; MISS MARGARET MCNEILL, Sir STEWART WOODHOUSE, M.D.; ALEC. G. WILSON, Esq.; and DERMOT O'BRIEN, Esq.

S. W. STRANGE, Esq., Secretary.

Dr. ROBERT THOMSON, M.B., examined.

6064. The CHAIRMAN.—You are Chairman, Dr. THOMSON, of the Public Health Committee of the Belfast Corporation?—Yes.

6065. And a medical practitioner in the City of Belfast?—Yes.

6066. You are, I take it, familiar with the administration of the Public Health Committee in this city?—I am.

6067. Do the Public Health Committee control the administration of the Dairies and Milk Shops Order?—They do.

6068. Would you kindly tell the Commission what arrangements have been made for the purpose of carrying out that Order in the City of Belfast?—We have a Veterinarian in the first instance who inspects all the cows, and the cow-sheds are inspected besides. The Veterinarian is assisted by a Dairy Inspector.

6069. One?—Yes, one Dairy Inspector, who commences as to the regulations in connection with the cow-sheds. If he sees anything suspicious about a cow he reports the matter to the Veterinarian, and the Veterinarian visits the place.

6070. And reports to the Public Health Committee?—To the Medical Officer of Health.

6071. Whose reports are submitted to the Public Health Committee?—They are.

6072. Do you know of your own knowledge whether prosecutions have been undertaken for the purpose of enforcing the conditions laid down in this Order in the City of Belfast?—Yes, prosecutions have taken place for breaches of various regulations, but I am glad to say that we require very few prosecutions now. People are quite ready and willing to carry out the provisions of the Order as a rule.

6073. And the supervision carried out by your officers is sufficient, without the aid of prosecutions, to enforce compliance with the provisions of the Order?—That is so.

6074. Has the Public Health Committee any reason to complain of want of co-operation on the part of the municipal authorities in the carrying out of the Order?—I have complained several times of the inadequate penalties. Our penalties would not average over £1 for each prosecution. In Dublin it is quite common to have penalties of £8 imposed. Here we get a fine imposed of seldom over £2.

6075. Would this be for adulterated milk or breaches of the Order?—Adulterated milk. It is a peculiar circumstance that the Guardians get very much higher penalties than we do. They get samples of the milk supplied to the Workhouse, and they get very much higher penalties than we do.

6076. From the same authority?—Yes.

6077. That seems rather difficult to understand?—I never could explain it, but it is a fact.

6078. And there has been a feeling amongst these responsible for the carrying out of the Order that when prosecutions were undertaken and convictions obtained, the penalties imposed were inadequate to the offence?—That is so.

6079. Naturally that fact would make those engaged in the trade more careless of prosecutions than they otherwise would be if the penalties were more severe?—Yes.

6080. And it would also lead to greater need of care and diligence in the administration of the Order?—Yes, that is so.

6081. Has any outbreak of infectious disease ever been traced to the milk supply in this city within recent years?—Yes, several outbreaks have been

traced, but so far as my recollection goes, all these outbreaks were due to milk supplied from the surrounding districts outside the city.

6082. The milk supply of Belfast is not entirely raised within the city?—No; one-third comes from within the city and two-thirds from outside the city.

6083. That would be about the proportion?—Yes.

6084. Has your Public Health Authority ever sought to inspect the premises from which milk is supplied to the city outside your own area?—Yes. For a number of years our Inspector went to dairies outside the city, and in the earlier period he was not refused inspection. However, year by year since, he is more often refused permission to inspect these outside dairies. In fact the Local Authorities resent our inspection, and they informed these dairy-keepers that our Inspector had no power to inspect their premises, and that he is only a trespasser, and they recommended refusal of inspection to our officer.

Things got so bad that in 1909 we approached the Local Government Board to give us power under the 19th Section of the Tuberculosis Prevention Act to inspect dairies situated outside the city from which milk was supplied to the city. They said that they would rather give the Local Authorities time to enforce the Order. The Order was only a couple of years in force then; and they stated that they thought it better not to interfere until the Local Authorities had an opportunity of putting the Order into operation. However, things have not improved to any great extent. In some dairies the Order as a dead letter; and we approached the Local Government Board again in December, 1911, and we had a very satisfactory interview with them; and they gave us to understand that they would hold an inquiry, and let the Local Authorities show cause why we should not have the powers of inspection we sought. The Local Government Board have not advertised the matter so far, and I don't know what any arrangements have been made, but in the near future there will be an inquiry.

6085. The Local Authorities outside the city have not shown any more diligence in putting the Order into operation in their respective districts than they did in the past?—Well, one or two of the Local Authorities have put the Order fairly well into operation, but not in the way that it ought to be enforced. The Castle-rough Authorities prided themselves on the way they carried out the Order, but our Inspector reports that it is very inadequate. Our officers have reports, and will submit them to the Commission as to the condition of these outside dairies.

6086. Has any pressure been brought to bear on these outside Local Authorities to enforce the Order?—Yes. The Local Government Board sent a circular to the various Local Authorities stating that complaints had been made that they were not enforcing the Order, and that if steps were not taken to enforce the Order they would be compelled to put into operation the 19th Section of the Tuberculosis Prevention Act.

6087. Has that circular had any effect?—I cannot really say.

6088. Has it only been issued recently?—I think that the circular letter was issued after our first interview with the Local Government Board in 1906, and in spite of that threat of the Local Government Board some of the outside Authorities are not carrying out the Order.

6089. From what area would you say that the milk supply for the City of Belfast is drawn?—The greater part of the milk supply from outside sources comes

from the case under the jurisdiction of the Cottingham Rural District Council, the Hillsborough District Council, and the Belfast Rural District Council.

6090. Have any of these Local Authorities employed a Veterinary Inspector?—I think they all have. With regard to the Hillsborough Authority, they presented our interference so much that they had notices placarded in their district warning the people that no one had any right of inspection except the officers belonging to the Hillsborough Rural District Council.

6091. That did not exhibit any very ardent desire to co-operate with you?—No; they won't co-operate at all. As a matter of fact, they resent our interference.

6092. It seems rather an unwise policy, as they are dependent on the people of Belfast for the sale of their milk, and when they do not supply milk under hygienic conditions the Public Health Authority of the city must interfere?—Yes.

6093. You stated that disease had been traced to the milk supply?—Yes.

6094. Was that milk drawn from the city or the country area?—The greater number of cases arose from the dairies outside the city. For instance, we had outbreaks of typhoid and diphtheria undoubtedly traced to that cause.

6095. And did your Public Health Authority endeavour to inspect the source of supply?—We inspected the milk supply. On one occasion we were refused permission to inspect.

6096. Notwithstanding the fact that the outbreak of disease was directly traceable to the milk supply derived from this place?—We had reason to believe that the disease was traceable to this milk supply, and we were refused permission to inspect until we obtained it by a magistrate's order. We discovered a boy who was a carrier of diphtheria.

6097. He was engaged in the milk trade—engaged as one of the servants in the employment of the milk vendor?—No, he was the son of the milk vendor. He was about thirteen or fourteen years of age.

6098. Was he subjected to any test?—A swab was taken from his throat, and it was examined microscopically, and the bacilli were found.

6099. Did the man refuse inspection in that case?—Yes, until we compelled him by a magistrate's order.

6100. What action was taken as regards the milk supply?—The family of the vendor were sent away, and the milk vessels and the premises were disinfected. The family were kept away until we were satisfied that there was no infection.

6101. Was typhoid ever been traced in the same way?—It has been traced in the same way even when a doctor's certificate was produced that there was no typhoid in connection with the milk supply. One particular case I remember was where a girl in connection with this dairy was supposed to have a cold, and she was certified by the doctor to be free from typhoid. However, Dr. Wolfe had some of her blood subjected to the Widal test, and this showed that she was suffering from typhoid. We had another case of a carrier who was a milker in connection with a dairy, and a great number of cases of typhoid fever were traced to that dairy.

6102. To that particular dairy?—Yes.

6103. What action was taken by the Public Health Authority—were all the employees subjected to the Widal test?—Yes, I understand so.

6104. Pending this, was the milk from this particular dairy sent into the city as usual—during the period of suspicion or doubt was the milk still disseminated through the city?—It was.

6105. Do you think that the Public Authority ought to be empowered to prevent the sale of milk when a case of suspicion arises, pending the final examination and determination of the cause?—That is a problem I have not considered. In the case of suspicion, I think it would be very hard on a dairy-keeper to suspend his trade.

6106. But is it not a sensible thing that milk laden with disease germs should be distributed to the public?—That is so, undoubtedly. I don't know of any authority to stop the sale.

6107. You think it would be too drastic a remedy to apply?—I do, but I certainly say that the Local Authorities ought to investigate, and make a report as soon as possible; and I think that is one of the

urgent reasons for liberty of inspection without waiting for the magistrate's order, and that is what we contended for in the Public Health Committee. Suspending a dairy-keeper refuses inspection, you would be delayed for a couple of days between getting a magistrate's order and giving the dairyman twenty-four hours' notice to show cause why the milk should not be stopped.

6108. Do you think that the Public Health Committee ought to be empowered to act instantly in a case of that kind?—I do.

6109. Has any case arisen within the city in which disease was traceable to the milk supply?—I think so, but I am not quite familiar with them. The Medical Superintendent Officer of Health, Dr. Baile, will be able to give you more information on that subject.

6110. Referring to the case of typhoid carriers, do you think that it would be unreasonable to have all the persons engaged in handling milk subjected to the Widal test in order to ensure that no typhoid carriers were engaged in the business?—I think it would be a very excellent thing.

6111. What view do you entertain with regard to the feeling that the dairyman and his employees would have on the subject? Do you think that they would object to the application of the test?—I don't believe they would. They might at first. They would get educated to these things.

6112. You are quite clear on the point that the outside Authorities have not manifested any desire to co-operate with you in tracing the disease to its source when the milk in their district was suspected of being the cause of an epidemic?—I am very averse to say that every obstacle was thrown in our way by the Belfast Rural District Council in connection with the epidemic of diphtheria.

6113. Don't you think it advisable that a uniform rule should apply, and that the same method of inspection should be made imperative in all districts, and that every Local Authority should be compelled to enforce the provisions of the Diseases and Contagious Order?—Yes; and unless the Local Government Board appoint supervising officers the Order will never be properly enforced.

6114. You are rather apprehensive that the administration of the Local Authorities would not lead to a uniform administration?—It would not lead to a uniform administration, and the reason in the first instance is that it is not of much interest to the Local Authorities. In the second place, the Rural District Councils are composed, to a great extent, of people engaged in the dairy trade, and they don't want to enforce the Order.

6115. Would you be in favour of having the Order administered by a Central Authority rather than by the Local Authorities?—I would be quite satisfied if the Local Government Board appointed supervising officers to see that the Order was enforced, and I would go further than that, and I would say that they ought not to permit these dairy-keepers to send milk either into the town or into a country except that their premises fulfilled the regulations.

6116. Quite so. Would you be in favour of having the officers appointed under the Dairies and Milk Shops Order being professional men—Veterinary Surgeons?—Well, not all.

6117. One for each district would be sufficient?—No. As a matter of fact, you know that there are provisions of that Order that are best looked after by a qualified Veterinary Surgeon, for instance, as to the healthy conditions of the cows; but there is nothing to prevent an unqualified man from acting as Dairy Inspector, and seeing about the cleanliness of the cows, because, after all, that is of immense importance. Evidence will be put before you to show that the provisions of the Order are not carried out in connection with the cleanliness of the cow sheds. Some of them are kept in a deplorable condition, and an unqualified man could look after that.

6118. Provided he has the assistance of a qualified Veterinary Surgeon whenever he may need it?—Yes.

6119. Have any prosecutions been instituted with regard to the want of cleanliness in the habits of those engaged in the handling of the milk?—Yes, there have been prosecutions for dirty hands.

6120. What sort of penalties were imposed in such cases?—The Inspector will give you that information. I cannot remember.

6131. With regard to the health of the cows, has your Veterinary Inspector in the city ever reported to your Public Health Committee that animals suffering from clinical tuberculosis were supplying milk within your area?—He has reported to that effect.

6132. And what action was taken?—In one or two cases I believe the animals were slaughtered—in two cases, and we paid compensation. I think these two animals had tuberculosis of the udder. However, the Veterinarian will deal with that in his evidence.

6133. I wanted to know from you, as Chairman of the Public Health Committee, and you think that it was a proper and judicious expenditure of public funds to pay compensation to the owners of such animals in order to ensure that they would not be used for supplying the city with milk, and probably be a source of infection to the public at large?—Yes, I think it justifiable to pay such compensation when we compel slaughter. It is a different thing to pay compensation where the animal has been slaughtered for the purpose of food, but this is a case where you compel slaughter, and I think that compensation in that case is justifiable.

6134. And the public have no right to complain at the cost imposed on them by reason of the slaughter of an animal under the conditions you describe?—They have no right to complain. There is just one other point to which I wish to refer, and that is that in my opinion the milk vendors ought to be licensed.

6135. I quite overlooked that point?—Yes, I think he ought to be licensed, and the things that I would take into consideration would be, first the man's character, and second the suitability of his premises for carrying on the trade. I would impose the condition that if a man was prosecuted and convicted more than a certain number of times his license should be withdrawn.

6136. You would put him out of the trade?—Yes, if he was convicted more than a certain number of times. And there is another thing that I think we ought to be provided with, and that is that the Medical Superintendent of Health should be provided by each milk purveyor periodically with the sources of his supply. We have no right to demand from a milk purveyor the source of his supply except we have reason to believe that infection is caused from that supply.

6137. You have a number of purveyors who get milk from the country, and become distributing agents in the city?—Yes, and we have no right to demand from him the source of his supply except we have reason to believe infectious disease was caused by his milk supply.

6138. And do you think that it ought to be made imperative on him to keep a register of the people who supply him, and that that register ought to be available to the Medical Officer of the Local Authority?—Yes.

6139. Lady EVERARD.—You say that there is no power to go to a milk vendor in Belfast and ask him where he obtains his milk?—Yes, except we have reason to believe that infectious disease has arisen from his supply.

6140. Because we have it in evidence from Mr. Smith, the Local Government Board official, that under Article 23 of the Dairies Order "every purveyor of milk shall keep a register showing the names and addresses of all persons from whom, at any time, he obtains any supply of milk; and shall permit the sanitary sub-officer, or any other officer of the Local Authority thereto authorized by him, to inspect such register at all reasonable times."—I am delighted to hear that, because I asked our officers to find out for us if we had power to demand the source of supply from a milk purveyor, and the information I got was that we had not.

6141. I am reading from the Local Government Board witness's evidence. Mr. Campbell asked him, "So that if a man in Dublin, who is a milk distributor, obtains his supply from the country, the sanitary authority have it in their power to go to that milk distributor and obtain a list of the sources of supply and deal with the matter?" and the answer was—'Yes, but they could not go outside their own district, but they could bring it under the notice of the portulane Local Authority.' Is it your opinion that it would be desirable to have the Veterinary Surgeon appointed by a Central Authority, because we have

evidence that it is extremely difficult for a Veterinary Surgeon who is not a whole-time officer to prosecute or bring the Act into force against those who employ him, and who would have power to dismiss him—I mean the District Council?—That is one of the reasons why I think that the Order is not enforced in the country districts—exactly for that reason.

6142. Then I take it that you approve of licensing as against registration?—I approve of licensing, yes.

6143. A good deal of milk is sent to Belfast which you think is not from registered dairies?—That is undoubtedly so, and our Inspector will put before you figures showing the number of dairies that he visited that were neither registered nor inspected, and from which milk is sent into the city.

6144. That is a very serious matter?—Yes.

6145. The CHAIRMAN.—What action is taken by your officers in the city to inspect the milk that is sent in regarding its condition and the cleanliness of the vessels in which it is sent in?—We take samples of it, and have it examined.

6146. That is for purity?—Yes.

6147. I want to know what you do in regard to the cleanliness of the milk, because it has been represented to the Committee that the vessels in which the milk is brought into the city are often distinctly unclean, and that the conditions under which the milk is carried in the trucks are not by any means calculated to convey it to the consumer in a hygienic condition?—We have the Inspector under the Food and Drugs Act to give evidence on that point. He is not on the list of our witnesses, but the Public Health Committee gave me power to present him if necessary. So far, I have heard no complaint as to any want of cleanliness, but the Dairy Inspector will give you evidence on that point.

6148. Mr. WILSON.—Does the Belfast Public Health Committee carry out any definite policy in regard to the milk trade of the city?—Yes.

6149. Can you outline the policy—the methods which they are taking for the improvement of the dairy trade?—I think there is not the slightest doubt about it, but that the Dairies and Milk Shops Order is administered very well in our city.

6150. And you are satisfied with the condition at which the city dairies have arrived?—That is so.

6151. And from the dairy man's point of view, the objection to the present situation outside the city is that the city men have been forced into a position of competition with other men outside who have not had to spend the same amount of out and trouble on their premises?—That is so.

6152. Have you any opinion as to whether there is a shortage of milk in Belfast?—I have no knowledge.

6153. And consequently you don't know whether any reduction has taken place in the supply in consequence of the enforcement of the Order?—I have no knowledge.

6154. I think I am right in saying that there is a systematic impurity of the Belfast milk supply for tubercle bacilli?—Yes, there is.

6155. Can you explain to us just what the Committee do at the present time in regard to that system?—Samples of the milk are sent to Professor Symmers, the Bacteriologist, who will give evidence here, and as far as my recollection goes, I don't think he ever discovered tubercle bacilli in any sample.

6156. That is very interesting information. I gather that you don't propose to discontinue the examination of the samples because the results have been negative?—No. I might say that Professor Symmers is practically a permanent officer—I hope he will be a permanent officer. The intention is to retain his services.

6157. And you would be satisfied if Professor Symmers went on proving negative results for a series of years?—Yes, and I would be delighted in continuing him in his present position.

6158. Have you any suggestion to offer with regard to a proposal that Municipalities should run the dairy trade?—I would have an objection to that.

6159. Would you consider that the Public Health Authority or any Committee of the Corporation would be suitable to manage the trade?—No.

6160. Why?—I don't think it is their business at all. I think that if the Order was efficiently administered there would not be any necessity for a Municipal Authority to step in to look after the milk supply.

6161. When we were sitting in Dublin we visited a very interesting milk depot started by the Women's National Health Association in St. Peter's Road. Have you started that?—No.

6162. You know the idea of pasteurising and homogenising milk, and otherwise treating it for infants?—Yes.

6163. And supplying it to the poorer classes at nominal rates, or free in some instances?—Yes.

6164. That system is run at a considerable loss. It is connected with a system of following up the infants to their homes with trained nurses. Would it be within the province of the Public Health Committee to assist in running such a depot?—I would object. I think it would be going too far. I think that is a matter for charitable and philanthropic societies, but not for assistance from public funds.

6165. Would you leave that entirely to the charitable public?—Yes, or to the Poor Law Authorities; but I don't think the Public Health Authorities would be justified in spending money in that way. It is a matter either for a charitable or philanthropic body, or for the Poor Law Authorities, who are responsible for looking after the destitute poor.

6166. You have, in point of fact, a small Municipal Bazaar Fund?—Yes; the money is collected from various sources. There is no Corporation money going into that Fund. We have various sources to collect it from, and it is administered by the female sub-sanitary officers under Dr. Baile's supervision. The poor get no money from the Fund. They get an order, I understand, for a certain quantity of milk. However, Dr. Baile will be able to give you information about that. It is administered under him.

6167. I think you said that there was only one Dairy Inspector in Belfast, a whole-time officer?—That is so.

6168. If I am right in my recollection, they have three in Dublin, and they keep them at work?—Perhaps they have more dairies situated within the city than we have.

6169. How many dairies are there within the Belfast area?—Two hundred situated inside the city.

6170. In Belfast, I take it, you would agree with a statement of the problem in this way—that the city largely consists of a multitude of small houses, and in each of these houses there is a family buying only a small quantity of milk, and from the commercial point of view, it is very difficult to organise the trade upon a commercial basis?—Yes.

6161. That would represent the problem in Belfast, would it?—I am not able really to express an opinion on that subject.

6162. Would you be in favour, when licensing milk purveyors, to make it imperative that in all future premises that were to be licensed there should be no connection between the part of the house in which milk was stored and the rest of the dwelling-house?—In our Omnibus Bill we have got ample powers to deal with that matter.

6163. Powers to prevent milk being stored in a bedroom, for instance?—Yes, we have ample power to prevent any connection between bedrooms and the place where the milk is stored. We have very ample powers, indeed, under the new Bill which has only just passed into law.

6164. You have not been able to do much so far to enforce it?—No; but we have ample powers to deal with the matter to which you refer.

6165. Lady EVERARD.—Do you know that in Manchester they have power to go outside their district and inspect the sources from which the milk is supplied to the city?—I did not know about Manchester.

6166. They have got a private Act, and they have got outside powers of inspection?—I did not think any city had that power except London. However, the matter rests entirely in the hands of the Local Government Board, who have it in their power to give us just the same powers. They can do it under the 19th Section of the Tuberculosis Prevention Act; but their reason for not granting it at first was that they wanted to give the Local Authorities time to put the Order into operation. Now they have had four summers since the Order came into force, and in some places the Order is just a dead letter.

6167. The evidence that came before us showed that persons sending in milk to a city are liable to a penalty if they are not registered?—Yes.

6168. Mr. WILSON.—We had a considerable body of evidence in Dublin that the local custom there is that

very many of the cows that are housed there during the winter months are sent outside the city area in summer on grass. Does that custom prevail here?—Yes, the cows are sent to the country during the summer months.

6169. And during that time you have no power to follow them up?—No.

6170. Lady EVERARD.—Are they inspected?—As a matter of fact, I believe they are inspected, and our Inspectors are regarded as trespassers.

6171. But they are not inspected by the Local Authorities into whose districts they have been sent to graze?—They are not, I believe. Our Inspectors inspect them on the grass, but the Local Authorities, as far as I know, don't inspect them.

6172. The CHAIRMAN.—Do the owners of the cows ever raise any question as to the jurisdiction of your officers to make an inspection outside your own district; say, if your Inspector went outside your area to examine cows from the city, would the owner question his jurisdiction?—I do not believe he would. I never heard of such a case. However, the Inspector, when he is examined, will be able to tell you that from his reports.

6173. Mr. O'BRIEN.—Talking of the power to go to an outside area, you have no power to go out and inspect, even though you have a reasonable suspicion that infected milk is being sent into Belfast?—We have power if we have reason to believe that disease has been caused by that milk supply.

6174. But only after you have got a magistrate's order?—Yes.

6175. Supposing that you knew that a supply of milk sent into the city was contaminated, have you power to prosecute on inspection after you have got the magistrate's order?—We have no power except to compel them to cease the milk supply.

6176. But not to prosecute?—I do not believe we have power to prosecute.

6177. Can you call on the Local Authorities to prosecute, because I suppose the Local Authorities have power to prosecute?—Yes, but you cannot prosecute unless they are committing an infectious disease, but in the case that I referred to there was no concealment of disease, because it was not known that the disease existed.

6178. I see. In talking of registration as against the licensing of milk vendors, what advantages do you calculate would be got by licensing over the existing powers of enforcing registration?—Simply this, that if a man did not keep his premises in a good condition, and if he was convicted a number of times of adulterating his milk, I would withdraw his licence.

6179. Have you not the power to withdraw registration?—There is no power that I am aware of, except that you can prevent him sending in milk if you discover infectious disease; but in any other circumstances you could not stop his milk supply.

6180. If you had the power, as a considerable number of witnesses have wished apparently, of licensing as against registration, would you be in favour of licensing all owners of milk cows, or merely milk vendors?—Simply milk vendors.

6181. Don't you think that would be rather apt to lessen the milk supply, because people would say, rather than take out a licence "we would give up selling milk"; whereas, if everybody had to be licensed as an owner of milk cows, there would not be the same feeling against it?—I don't think so.

6182. You think that would be too cumbersome?—I do.

6183. I think I heard you say that you had some cattle slaughtered for tuberculosis?—Yes.

6184. Do you give compensation for all cattle that are slaughtered as tuberculous?—No.

6185. I notice from the evidence that it is some before us that there is an enormous number of cattle slaughtered here?—I am referring to the dairy cows that are suffering from tuberculosis of the udder, and I believe that it is only in a case of that description that we are empowered to give compensation, and I said that I thought we were justified in giving compensation in a case of that kind, because there you compel slaughter and you pay compensation, the same as you do in foot and mouth disease. In cases where a man has actually slaughtered an animal for the purpose of food, and the flesh was found to be

unwholesome and unsuitable, and was condemned because it was diseased, you would not give compensation, just as you would not compensate a man who had a herd of apples that were rotten; but when you condemn slaughter of the cow, I say you are justified in paying compensation.

6186. But, on the other hand, you slaughter a cow, or order her to be slaughtered, because she suffers from tuberculosis of the udder, or because you find otherwise that she is tuberculous, but at the same time the meat would be fit for human consumption in many cases, though she might be letting down tubercle bacilli in the milk, and in a case of that sort do you give compensation?—You are not empowered to give compensation except in the case of dairy cows suffering from tuberculosis of the udder.

6187. You order her to be slaughtered, and what happens to the carcass?—The veterinarian will give evidence on that point. I know that in the case of the two cows that we condemned within my recollection, the carcasses were studded with tubercles and unfit for food. I do not see why the carcasses should not be eaten if the disease was localized, and it passed our veterinarian. I am not quite clear on the law of the subject.

6188. Have you anything to do with the public slaughter and the slaughter of the animals here?—The Public Health Committee do not control the actual slaughter of the animals. It is the Markets Committee. We control the meat supplies.

6189. There is a very large number, apparently, of milk cows slaughtered here every year. Apparently it is the market here to kill off the cows as soon as they go off milk?—The veterinarian will be able to give you statistics regarding all these tuberculous cows, and perhaps you will be surprised when I tell you that the great majority of these tuberculous cows that are slaughtered here are sent up by train from Dublin—that they don't belong to Belfast at all.

6190. We had evidence that they were disappearing from Dublin, and we wondered where they went to?—As a matter of fact, that is what spoils our statistics and makes it appear that we have more tuberculous animals than what we ought to have. The veterinarian has full statistics on that subject.

6191. Now, in the examination of the milk supply at Belfast for tubercle bacilli, I gather from Mr. Wilson's question that you have a regular system of inspecting, at all events, some of the milk that comes into the city—is that all?—Yes. The Inspector of Food and Drugs takes samples regularly.

6192. Where?—At the stations.

6193. This is train-borne milk that is inspected?—Yes, but he takes samples also from the City supply, and they are sent to Professor Symonds for examination.

6194. When you say there is an examination for tubercle bacilli, is it microscopic?—No, guinea-pigs are used.

6195. That, of course, involves a considerable time; and by the time you find out whether the milk has tubercle bacilli in it, would you be able to find out where that milk comes from?—We could tell where the milk came from. It would be quite easy to tell that.

6196. Is there any opposition to this taking of samples?—I never heard of any, except in a couple of cases where they refused.

6197. Mr. WILSON.—I objected very strongly myself on one occasion to have a sample taken?—I do not think you need have been afraid of your milk.

6198. Mr. O'BRIEN.—Do you find that the owners of cows in the areas outside the city, or in the area of Belfast city, have their cows subjected to the tuberculin test—many of them?—Very few. There is one dairy at Holywood where it is obtained that the cows are subjected to the tuberculin test, and perhaps Mr. Wilson's herd are also subjected to the test.

6199. Mr. WILSON.—No.—The only one that claimed to have the tuberculin test applied is the owner of the Holywood dairy.

6200. The CHAIRMAN.—Is it a large dairy?—Yes.

6201. Mr. O'BRIEN.—Whose business is it to inspect train-borne milk—does that come into the Sanitary Inspector's work?—The Inspectors of Food and Drugs. We have two Inspectors of Food and Drugs.

6202. Do they attend the arrival of milk-trains at the stations?—Yes, very often.

6203. And take samples?—Yes.

6204. How are they able to take samples of milk at the stations—can they do so?—I cannot exactly say how they take the samples.

6205. Because all the milk-cans should be sealed until they arrive at the milk depot, or wherever the milk is distributed. They ought not to be able to take any samples. What I wanted to get at is whether there was anyone here who could report on the conditions of the milk cans and the milk supply so treated by the Railway Company, and as to whether the milk cans are sent in clean—whether the lids are properly fixed or only fastened by pieces of dirty cloth?—You will have the Inspector up before you—Inspector Reynolds, one of the Inspectors under the Food and Drugs Act. The Committee empowered me to put him before you if I thought it necessary.

6206. Mr. STEWART WOODHOUSE.—I think, Dr. Thomson, you said that tubercle bacilli were not found in samples of milk subjected to microscopic test. I suggest, therefore, you don't suppose that children who have acquired tuberculosis have got it from milk?—It is a very difficult subject. I must say that I am greatly surprised that tubercle bacilli have so far not been discovered, because if you take the statistics of the milk supplied to London, the number of samples containing tubercle bacilli is starting.

6207. The CHAIRMAN.—Which shows you have a much sounder stock in this country?—Yes.

6208. Mr. O'BRIEN.—I gather from what you had said before that the percentage of animals slaughtered as being tuberculous here was higher than before, because you have got so many of the diseased cattle from Dublin?—That is so.

6209. Therefore, that would look as if you had more tuberculous dairy cattle here, and, therefore, you would expect more tuberculous milk, and if you don't find the tubercle bacilli in the milk one would like to know what the explanation was?—We have not such a high percentage of tuberculous cows as appears from the statistics, because there are cows sent up to Belfast.

6210. Not for dairy purposes?—For slaughter.

6211. The CHAIRMAN.—For meat?—For slaughter for meat.

6212. Dr. Thomson is now dealing with the cows that have been discovered tuberculous rather than the animals that have been slaughtered on account of suspicion?—I was dealing with the cows that were sent up here by rail.

6213. Not as much cows, but as ordinary animals for meat?—Yes. They are brought up here from Dublin for slaughter.

Mr. O'BRIEN.—I wanted to make that clear, because it looked rather like a contradiction—if you had not found the tubercle in the milk and had a higher percentage of tuberculous cattle.

6214. Mr. STEWART WOODHOUSE.—You don't attribute to tuberculous milk much of the tuberculosis that is found in children?—There is no doubt that a number of children are tuberculous that live on milk, and how you get tuberculous from any other source I don't know; but as far as our methods are concerned, they have not revealed the presence of the tubercle bacilli in the milk supply.

6215. There are other sources of tuberculosis?—Yes. The milk might be free from tuberculosis when it came to the house, and it might be contaminated with tubercle bacilli in the house, which I have no doubt occurs very frequently.

6216. Mr. WILSON.—You would not blame the dairy trade for that?—No. The probability is that the source of infection is in the house and in the people occupying it.

6217. Mr. STEWART WOODHOUSE.—You mentioned cases of typhoid and diphtheria which might be easily attributed to infection in dairies?—Yes.

6218. These are rare occurrences as a rule—cases that were attributed to infection in the dairies?—We had not many.

6219. Do you know if the poorer classes are using more milk for their families than they used to do, or are they much the same as in former years?—I am not in a position to say that.

6220. Have there been prosecutions for putting preservatives into the milk?—Yes.

6221. With what results?—We got penalties, but we do not get high penalties.

6222. Have there been many prosecutions for the using of preservatives?—Not many, we had a few.

6233. Do you allow a certain percentage of preservatives?—I think the law allows a certain percentage, but I am not quite sure on the point.

6234. Miss McNamara.—Is it your Committee that is responsible for the appointment of the Dairy Inspector?—Yes.

6235. Are there any definite qualifications which your Committee expects to find in a Dairy Inspector?—The Dairy Inspector is a man who is supposed to have experience in the dairy trade—a man who has had practical experience in the dairy business.

6236. Do you mean that he has been already engaged in the dairy trade?—Yes.

6237. And is no longer engaged in the business?—Yes, of course.

6238. Supposing your Committee were making a new appointment of a dairy inspector, what qualifications would they expect in the applicant?—I think it would be absolutely essential in the qualifications of a man as a dairy inspector that he should have practical experience in dairy work.

6239. The Committee would expect that he would produce some evidence of having been engaged in a dairy that was well worked?—That would be important.

6240. Do you know what is required absolutely?—I know that our dairy inspector was for many years engaged in dairy work for himself.

6241. What I want to know is, would that be made a requirement, or was the fact that he had a knowledge of the dairy business merely accidental?—He was appointed before my time. I am a member of the Public Health Committee only four years.

6242. Mr. O'Brian.—You have only one dairy inspector?—Yes, and a veterinarian.

6243. Does he also inspect?—Yes. He inspects both the cattle and the cow sheds.

6244. The Chairman.—Is he a whole-time officer?—Both are whole-time officers.

6245. Mr. O'Brian.—And you think that one inspector is sufficient to inspect the two hundred dairies in the city, and I do not know how many sheds there are?—We have an inspector of milk-shops besides. He is a whole-time officer. I did not include him. I should have included him, as a matter of fact, in the officers, but I was not thinking of milk-shops at the time. We have two inspectors, besides the veterinarian.

6246. And then this third man whose business it is to inspect milk coming in by train?—There are two men engaged in that. They are the Inspectors under the Food and Drugs Act. They have power to take samples. They inspect the food and drugs all over the city.

6247. Do you consider that one dairy inspector is quite sufficient to examine all the cowsheds inside the city?—Yes. I believe that the Order is very efficiently administered in Belfast. I have every reason to believe that.

6248. What does he do during the summer months when the cattle are out on grass—are there many cows kept in the city during the summer months?—I do not think there are practically any. I think a good deal of his time is spent going round the cowsheds pointing out the necessary repairs. However, he will be examined himself before you and give you evidence on that point.

6249. Miss McNamara.—Have you any qualifications for the milk-shops inspector?—The milk-shops inspector is a sub-sanitary officer, who has had ten years' experience in Belfast as a sub-sanitary officer.

6250. The Chairman.—But he is not now engaged in that work?—No. He is engaged entirely in the inspection of milk-shops. He was appointed to see that the milk is kept clean, and that the premises in which the milk is sold are in a sanitary condition.

6251. Lady Eversham.—Is the milk supplied to the Belfast Hospitals liable to inspection?—It is all liable to inspection with the exception of the Union. I may point out that our officers have the entire power to prosecute, and the Public Health Committee has nothing to do with that. Provisions used to be brought to bear on the Committee of an unsatisfactory sample

was discovered in order that a prosecution should not be taken. The question of prosecution never comes before the Committee at all. We know nothing about them. We hold our officers responsible for the carrying out of the law, and they have full power to prosecute. With regard to the Union Workhouse, we appointed the Master of the Workhouse as Inspector of Food and Drugs, and he has power to take samples and send them for analysis, and then the Guardians prosecute if the milk is not up to the standard.

6252. The Chairman.—You spoke about the number of tuberculous cows coming down from Dublin and slaughtered in Belfast. I take it they were slaughtered in the public abattoir?—Yes.

6253. And I presume if their carcasses are found to be infected with tuberculous to a very large extent they are condemned, and not used as human food?—That is so.

6254. And the owners of these animals suffer a loss on account of the destruction of the carcasses?—Yes.

6255. Has that been going on for a long time—I mean the trade in animals of that class?—I cannot say how long it has been going on, but it was brought to our notice last year by the veterinarians when it was an increasing trade—the trade in old cows.

6256. But does it not seem remarkable that a trade of this particular class and character, which must necessarily be very precarious, if not a losing trade, is conducted by certain dealers who bring cattle from the Dublin market here?—It seems to me no shared business bringing them down here. The only thing is that they get these cows for a trade. If they get one of them passed probably they could afford to lose another.

6257. Mr. O'Brian.—It is a gamble?—Yes, it is a gamble.

6258. The Chairman.—It seems a very precarious trade to pursue in?—As a matter of fact one animal was in such a bad condition in a cattle sale yard where fat cattle are sold that the Public Health Committee decided to prosecute the owner for having such an animal exposed for sale. It was quite obviously in a very diseased condition.

6259. And these animals are bought by dealers in the Dublin market, and subsequently offered for sale in a public mart in Belfast?—I cannot exactly say. The veterinarian intends giving evidence on that point very fully. I cannot say whether they are exposed for sale or bought in the Dublin market. I am inclined to think that they are bought in the Dublin market and sent to the abattoir. In the particular case I mentioned the animal was exposed for sale.

6260. Mr. O'Brian.—I think some member of the Commission asked you whether you would be in favour of any sort of municipal supply. Do you think it would in any way help in procuring a sufficient and pure supply of milk, supposing, instead of having milk-shops scattered about, you had the city divided into certain areas, with a milk depot under the supervision of, or possibly owned by, the municipality, which got this milk supply from whatever source was convenient outside or inside the city; that all the milk sold in that area should be sold from that depot, where it could be under supervision. Do you think that would be a possible or a wise way of dealing with the milk question. You understand what I mean?—I do.

6261. Do you think that if the milk were all sent to the one depot, which was under the immediate supervision of the municipality, or owned by the municipality, that that would greatly facilitate the getting of a clean and proper supply of milk?—That is a problem that would require very mature consideration, and I am not in the habit of making up my mind in a hurry. I am not qualified to express an opinion on the subject at present. It is a matter that would require very serious consideration. It is a very big subject.

6262. Did your Committee ever discuss that subject?—We never discussed it.

The Chairman.—Thank you, Dr. Thomson, for your interesting evidence.

Dr. ANDREW THOMAS, D.P.H., J.P., examined.

6253. The CHAIRMAN.—You are a medical practitioner in the city of Belfast?—Yes.

6254. Do you hold any public appointment?—No, sir.

6255. Are you a member of the Belfast Public Health Committee?—I am.

6256. Are you at all dissatisfied with the quantity of milk consumed by the working classes in their homes—do you know whether or not the children of the working classes are getting a reasonably adequate supply of milk for their development?—I believe, from my experience as medical practitioner that they are not. First of all, they are not getting an adequate supply of proper milk, and secondly, they are not getting an adequate supply of any sort of milk.

6257. To what causes do you attribute that—is it consequent on the difficulty of procuring it, or the sanitary conditions of the working classes?—I believe, first of all, that it is due to the commercial possibilities of the city—that mothers have very often to go out to work. They are limited in their means to buy, and the increased price of pure milk is hindering their buying as much as they require, and with regard to the nature of the supply, there is a great deal of condensed milk drunk by the children because it is cheaper, and also because there is a peculiar idea that it is more easily digested than whole cow's milk.

6258. You do not subscribe to that theory?—No.

6259. And do you recommend condensed milk if ordinary fresh milk is procurable?—It is injurious to the child, because it leaves its constitution in a lowered state of resistance to the bacteria of its own system.

6260. And if exposed to disease its power of resistance would be greatly diminished?—Yes.

6261. And it would more readily succumb to disease?—Yes; besides the absence of fat from condensed milk leaves it less nutritious as a food for children.

6262. In any case exercised to see that not more than the proper proportion of water is added to condensed milk?—I do not think that idea enters into the head of the mother when she is peeping the milk. She does it set by rule of thumb.

6263. There is no scientific treatment?—No, except so far as our lady visitors inculcate a little idea of scientific treatment; but they condemn the use of condensed milk.

6264. Is dried milk used as a substitute for whole milk?—To some extent, but against the better classes. It is dearer than pure milk.

6265. Is there a considerable trade done in that milk in Belfast?—It is more amongst the medical men, who find a difficulty on the part of the children to digest the ordinary cow's milk.

6266. Would the milk then be administered under the direction of the medical officer?—Yes.

6267. People do not, of their own volition, elect to use dried milk unless advised by the medical attendant to do so?—Generally speaking, except that one mother would advise another; but really it is given by the advice of a medical man.

6268. With regard to the milk supply of the poor, is it of a poor quality, and not supplied under the best hygienic conditions?—Yes.

6269. So that they suffer from diminution in supply and in quality?—Yes.

6270. And naturally this would conduce to a less virile and less robust rising generation?—Yes.

6271. How far does the question of money come into the purchase of milk, do you think—does the ordinary head of a household realise the value of milk as a food for children?—I am afraid not. I believe that in such a town as Belfast they are inoculated with the idea that because their fathers reared them or their friends on the country on a very indiscriminate kind of diet, it is quite permissible to do the same with a town child.

6272. And the result is that you have so many decrepit and anæmic specimens of the human race?—Yes.

6273. And the poor quality of the milk conduces to certain diseases?—Yes, such as scurvy, rickets and phthisis.

6274. Are the cows milked only for one calving in Belfast and then fattened or sold?—They might be used for more than one season. They might be used as milk cows until their milking capacities are exhausted, and then killed.

6275. Is it customary to put them in cold again?—I think so, but I cannot speak from personal knowledge.

6276. You direct attention to the fact that a number of calves are slaughtered in the Abattoir?—Yes.

6277. Why do you have these animals slaughtered in this way—do the owners think it is not profitable to rear them on milk food?—Yes, the milk required would not pay a farmer to rear the calves, so he kills them off, any, within the first week to save the milk.

6278. Do they get anything for them?—They get varying prices in the winter season. The price runs from 15s. to 41s. in the summer the price is higher because the milk is cheaper.

6279. And the number is comparatively less?—Yes.

6280. That, of course, leads to an enormous depreciation in the quantity of stock raised in the country?—Yes. I have some statistics with regard to the number of stink calves slaughtered in the public Abattoir at Belfast. I have also made some charts, which I hand in, showing the number of animals exported from Belfast for the last ten years, and the number of calves slaughtered in the Abattoir for the last five years. I wish to mention that in 1907 the City Veterinarian issued a notice, stating that all calves must be slaughtered in the public Abattoir. Previous to that they had all been slaughtered in the butchers' premises. From 1907 onwards, you may take it that, with few exceptions, all the calves were slaughtered in the public Abattoir. I find that the average of stink calves slaughtered in the public Abattoir, taking the period of five years, is 1,984, but it is obvious that all these would not be potential milkers; and I have had some difficulty in estimating the number of better calves slaughtered, and after consultation with some of the veterinarians, they told me that two-fifths of the whole number of calves slaughtered would be a fair average for the butchers. That would give 794 better calves slaughtered for the year at the public Abattoir.

6281. Unfortunately, I believe that the custom prevails in England as well?—I daresay there are two causes for it—not only that the milk is dear, and becomes dearer, and therefore it does not pay the farmer to rear his calf, but because also the flesh is cheap. It is about half the price of ordinary beef.

6282. That is the flesh of the immature calf?—Yes; but I would like also to say that it is a fallacious idea that it is food. It is really gelatine.

6283. As a flesh food it is very inferior?—Yes. One is reminded of the physiological experiment of feeding a dog on gelatine—if fed on about a fortnight, and the flesh of stink calves is practically gelatine.

6284. It is exclusively used by the poorer classes?—Yes; no first-class butcher would deal in it, but there are butchers who trade in no other form of meat.

6285. As a medical man, you are impressed with the absolute necessity, from the public health point of view, of having the milk produced and handled in the cleanest possible way?—Yes; perhaps I should draw your attention to the other side, showing the number of springers and milch cows exported from the port of Belfast.

6286-7. Thank you. You have gone to a great deal of trouble to put your views very clearly before the Commission?—This is a national question, and I am very pleased to help you. I want to draw your attention to the first chart—the one showing the average number of cattle of all kinds exported from Belfast for five years from 1902 to 1906. The number exported during that period was 127,241.

6288. Mr. WINDROP.—Do these figures refer to Belfast?—Yes, to Belfast. And the number of cattle exported for the five years from 1907 to 1911 was 143,558. I want to contrast that with the export of springers and milch cows, and I want also to tell the average price per head. The average price per head of all the calves exported from Belfast in the first

period of five years was \$16 15s. per head, and in the second period was \$16 15s. 6d., which shows that the average price per head is stationary. I ask your attention to the question of springers and heifers exported from Belfast. I regret that I have not the first quinquennial figures to compare with the second. I have only got the figures for 1907 to 1911. In that period there were 9,211 springers exported and 7,264 milchcows, making a total of the average of springers and milchcows exported 16,475. Now, sir, I put with that the figure of 794 better calves estimated to have been slaughtered in order to get at the total number of milchcows or potential milchcows that are lost through export or slaughter in the slaughter, and we arrive at 17,269—that is the export and slaughter of female animals alone. I ask you to look at the price of milch cows, and on one of the sheets you will see that (if you leave out the year 1911 in all, which I think is quite fair, because in that year all the numbers fell except those of milchcows) we have this significant fact—whereas the average price of the total number of cattle only varied, as I have shown you, within sixpence; with regard to the milchcows, the average price for the period from 1902 to 1906 was £17 5s., but in the second quinquennial period from 1907 to 1911 the price had risen to £18 15s. 7d. Now, sir, I think by putting these facts together we have this—that we are suffering a drain of 17,269 milchcows or potential milchcows per annum. That the price of milchcows exported is increasing in spite of a phenomenal year (1911), when all other exports fell; that although the average price of cattle remains the same for the whole ten years—1902 to 1911—it varied so much in regard to milch cows as, say, from £17 5s. to £18 15s. 7d. From the standpoint of political economy, I think it must be obvious that milk itself must be rising in price, and if it has not risen in price it is because its quality is deliberately being reduced. I will leave these sheets with you if they are of any use.

4289. Mr. WILSON.—These animals would be drawn from practically the whole of the North of Ireland?—Yes, and from Dublin, I understand, so that one has to be careful of a fallacy, that because they are exported from Belfast they have left Belfast neighbourhood, but it is well at the same time to bear in mind that there are a number of other ports from which there are exports. Animals exported from Belfast do not represent the area of supply so much as it represents the point of departure, because mostly these cattle go to Scotland.

4290. Where are your figures from?—I got some of them from the Perial Inspector and some from the Superintendent of Markets. They are official figures.

4291. Are there any of them from the Department of Agriculture?—No.

4292. The CHAIRMAN.—I am sorry Mr. Campbell is not here, because this evidence of Doctor Tremble bears on the work of his Department.

Witness.—I wanted (if I might for a moment call myself a scientist) to point out that unless you have knowledge that this drain is being made up in Ireland, obviously the drain goes on and the price rises, and I ask simply what is being done to make up the loss, and I would earnestly plead for a practical application of the Mendelian laws—obviously the farmer will know a good milker, but he will fail if he would have more than could be expected of him to know if he has got a good milking strain in his bulls, which is so necessary as the milking strain in the females, and unless that is done we will be drained of the best milking cattle.

4293. The CHAIRMAN.—And the country must suffer enormously in the meantime?—Yes. My suggestion is that the Department of Agriculture should have experimental farms on which they might take up the question of breeding a milking strain of bulls, that might be distributed, or even sold, to farmers in the various parts of the country to breed with cows they know have a distinct milking strain. I believe that would be a great work—to improve the milking class of the animals that remain in the country by an intelligent application of Mendelian principles. Let the dairy farmer look after the female animal and the Agricultural Department experiment and rear on one of their farms bulls of a good milking strain, and sell or hire them out. The farmer is inexperienced in rearing a proper type of bull, and

any advantage he procures is too tedious and expensive, and serves himself only; while he has the working inducement to rear milk cows.

4294. Mr. O'BRIEN.—The Department of Agriculture are doing something already on the lines you indicate with regard to bulls?—That is very satisfactory.

They have a number of bulls from registered milking strains where milk records have been kept. I think the bulls now available for distribution are of the third generation.

The CHAIRMAN.—About that.

Mr. O'BRIEN.—The Department is actually working on these lines at present I am glad to say, Dr. Tremble.

4295. The CHAIRMAN.—They are also seeking to develop it a little further by asking the owners of deep milking cows to keep a record of the quantity of the milk yielded in twelve months, and if this reaches a certain standard with regard to quantity and quality these cows will be registered and their male offspring also registered as a milking strain, so that I am glad to be able to assure you that at all events something is being done in the direction to which you have wisely called the attention of the Commission. Do you wish to leave that branch of the subject?—Yes, I think that is all I have to say with regard to it.

4296. Do you think that the orders at present in existence are not based on what one might describe as modern legislation?—I do. They are antiquated, cumbersome and inadequate. A great many of the Public Health Acts on which we go were made without a knowledge of the bacteriological advances of sanitary science.

4297. So that we are not actually up to date?—That is my point.

4298. And something more efficient might now be devised if the law governing this particular branch of public administration were brought up to the point of development which scientific research has now reached?—Yes. I might give an example of that from the Acts themselves—the fact that there is no reference to such a thing in any of the Acts as a "cowshed," and I would draw your attention to the fact that they all refer to an "infectious disease." If you take the Public Health Act of 1907 you will find the following:—

"Section 32.—(1). If any person knows that he is suffering from an infectious disease, he shall not engage in any occupation or carry on any trade or business unless he can do so without risk of spreading the infectious disease.

"Section 33.—(1). If the medical officer certifies to the local authority that any person in the district is suffering from infectious disease, the medical officer has reason to suspect is attributable to milk supplied within the district, the local authority may require the dairyman supplying the milk to furnish to the medical officer within a reasonable time fixed by them a complete list of all the farms, dairies, or places from which his supply of milk is derived during the last six weeks, and, if the supply, or any part of it, is obtained through any other dairyman, may make a similar requisition upon that dairyman.

"Section 34.—(1). Every dairyman supplying milk within the district of the local authority from premises whether within or beyond the district aforesaid shall notify to the medical officer all cases of infectious disease among persons engaged in or in connection with his dairy, as soon as he becomes aware or has reason to suspect that such infectious disease exists."

Now, sir, I will give you one example, and I do not wish to use any names. Lately we believe we had an outbreak of diphtheria caused by the milk supply, and on investigation it was found that one child of the dairyman had diphtheria himself in his throat, and the dairyman alleged that the child had never been ill, and yet we had the fact that out of eighteen cases in one district receiving the milk of this man, seventeen had diphtheria, and when the milk supply was stopped for the time being, to allow removal of the infected person, the outbreak ceased. We have got to recognise that a person might not be suffering from an infectious disease, and yet be capable of carrying a disease producing an epidemic such as diphtheria or typhoid.

6260. With regard to the question of germ carriers, I take it you do not think it would be an unreasonable provision to subject all persons handling milk to the Widal test?—Yes, and also an examination of their feces to see that they were not carriers, but I would also suggest the establishing in country boroughs that have infectious disease hospitals a system by which persons who obviously were appearing to turn out carriers should be notified, as a matter of law, by the authorities of the hospital. I see that according to the latest statistics it is supposed that 3 per cent. of the people who take typhoid fever become carriers, and that there are three per thousand of the population carriers. The danger is very real and very great. If the regulations were carried out in the hospitals that I have spoken of, it would be possible to detect the carrier.

6261. It would be possible for the Public Health Authorities, if suspicion were aroused to know whether a person engaged in the trade had been suffering from typhoid fever, and might not possibly be a germ carrier?—Yes, if a case of infectious disease broke out in a dairyman's family he would be liable to a hospital.

6262. Mr. WILSON.—Approximately, how many people are engaged in the dairy trade in the city?—I do not know.

6263. Could you get at it—there are two hundred lynes. The point I want to get at is, would there be in the city statistics that would suggest to us what number of people in the dairy trade are liable to be carriers?—In Belfast it would mean 1,200 carriers, estimating the population to be 400,000.

6264. The CHAIRMAN.—The application of the Widal test would not injure any great leadership on the community, seeing that its application would be limited to a very small proportion of the general population?—Yes, and from my experience of dairymen, I am certain that in self-protection they are quite prepared to do anything to ensure that their milk supply is clean, otherwise they would suffer from the destruction of their whole trade.

6265. They have now come to realize that it is to their own advantage to co-operate with the Local Authorities in carrying out every precaution that is possible in order to ensure that milk is not a source of infection?—Yes. If they resist, and they can resist in some cases successfully so far as the law is concerned, they know that the least reflection on the character of their trade that is published is more liable to injure them than anything else.

6266. Do you think that the Dairy and Cow Sheds Order should be universally administered throughout the entire country?—Yes.

6267. The Widal test is for typhoid?—Yes.

6268. Is there any analogous test for diphtheria?—No.

6269. How could you tell in such a case?—You would take a swab from the throat of the suspected person, and in twenty-four hours you could tell, and sometimes immediately. It is much simpler than the Widal test even.

6270. Mr. O'BRIEN.—How would you deal with a typhoid carrier when you found him or her?—He should be restricted from engaging in the milk trade. Under the Tuberculosis Prevention Act it is provided that the person suffering from it is not to be "employed or engaged in handling, preparing or distributing milk, meat, or any other article of human food intended for sale to the public." So long as there is any evidence of his being a carrier he should be prohibited from engaging in the trade or handling or preparing or distributing the milk.

6271. You are aware that there are exceptional cases where typhoid carriers remain typhoid carriers for life?—Yes.

6272. You have had from time to time within recent years very serious outbreaks of typhoid?—I do not say in Belfast itself—which were directly traceable to one original carrier, where a certain woman who was employed as an extra help in the house was a carrier and infected certain people, and amongst others there was a young girl who got typhoid from her and became another typhoid carrier. The original typhoid spreader was a typhoid carrier ten years ago and is still a typhoid carrier, and wherever she goes there is a typhoid outbreak in time. The girl who was infected by her some years after is now a typhoid carrier, and I believe is carrying infection. How are you going to

deal with these people?—They must be absolutely precluded from handling milk or any other article of food for human use.

6273. Here you have a case of two people who are apparently typhoid carriers for life, and how would any Public Health Authority deal with them—ask them to be taken and put on to Ferry Island and left there?—These are, I take it, part of the ordinary risk of life that we run, but we need not invite them to infect our food. The legislature has already recognized the possibility of persons suffering from tuberculous being precluded from handling meat and milk or any article of human food, and the same thing should be done with regard to typhoid carriers, and I hold that that would be no hardship. In fact, I would go further and say that such persons should not be allowed even to cook food.

6274. The CHAIRMAN.—So far as milk is concerned, you are quite clear that they should be absolutely precluded from touching it?—Yes, and I may say here, although it does not come within your purview, that butter should also receive the same attention as milk. I have pursued some experiments to see if you can get all the bacteria found in milk in butter.

6275. Mr. O'BRIEN.—Is not that butter which has come in contact with the germs in manufacture?—No.

6276. I thought the manufacturers destroyed a great many of the germs—that, at all events, the typhoid germs did not survive the treatment?—It is a small experiment, and is not complete; but I was going to say that I got some milk taken from a cow under strictly clean conditions, and put it into a small table cream which was sterilized. I churned the milk and made the butter, and found the germs which had been previously in the milk now in the butter.

6277. The CHAIRMAN.—The temperature of churning would not necessarily destroy the typhoid germs?—No. You would only bring it up to 60 degrees.

6278. Mr. O'BRIEN.—That is where you churn whole milk, but in churning cream you are reducing the risk?—That is so.

6279. Three gallons of milk, say, goes to make a pound of butter, and you reduce the risk proportionately in the case of butter?—Yes. The possibility is that the germs in the milk will convey themselves to the butter in some proportion.

6280. Mr. WILSON.—Under the Dairies and Cow-sheds Order, cowsheds are deliberately excluded from the purview of the Order if they make butter at home. Mr. Smith, the Local Government Board witness, told us that the reason for this exclusion was that it was very doubtful whether butter came under the Act, in view of the fact that the Local Government Board had no evidence that disease could be distributed by butter. This has had a very injurious effect in some respects upon certain branches of the dairy industry, and it has been submitted to us very strongly that the man who makes butter at home should also be brought within the purview of this Order. Do you agree with that?—Yes. About a year ago we had an outbreak of typhoid in a local institution. I may say that it was in the asylum. There were in all eight cases of typhoid fever which affected the staff, but no instance of the asylum took typhoid. The butter supplied to the inmates was different from the butter supplied to the officials. It was found that the butter parishes of by the officials came from a creamery in a certain County in Ulster. On making inquiry, it was found that the creamery had been supplied from a dairy where typhoid fever had existed. I do not say that the cause of the outbreak of typhoid was scientifically proved. It is only what one would call epidemiological evidence that the butter conveyed the typhoid germs in that case. The creamery had supplied butter to other shops in the town, but we could not trace any outbreak from the butter sold in those shops.

6281. It might be possibly some other source of contamination that caused the disease?—It was not scientifically proved, but there is this strong presumptive evidence. I think decidedly better say convey disease.

6282. You did not in that case find out whether the butter worker or the person who packed the butter might not possibly be a typhoid carrier?—No, sir. That

is just one of the difficulties that arise in what one might call the consumers' area and the suppliers' area; that we as a consumers' area have no right to go into the other area and pursue our investigations as we would have done if an outbreak occurred in our own.

6322. The CHAEMAN.—Do you believe it desirable that that power should be acquired?—Yes, but I would not say that the consumer authority should have the responsibility thrown on them of inspecting the suppliers' areas.

6323. I only suggest that the power should be permanent?—I quite agree that it would facilitate matters very much. I think it would be of enormous importance.

6324. Mr. O'BRIEN.—In the case that you spoke of about the creamery supplying butter to this region, do you not think that if the creamery people's manager had been approached he would give all facilities to find out whether any workers who had packed the butter after it had been made were not free from typhoid germs?—As a matter of fact, we sent our inspector up. We got samples and we did other things; but there is always that amount of what one would call passive resistance. One does not want to find out the work. There is generally passive resistance against any investigation.

6325. The CHAEMAN.—There is a certain amount of jealousy when you come outside your own area?—Yes.

6326. Do you think that the powers conferred on the medical officers of health with regard to infectious diseases are insufficient?—I do, most distinctly. I would draw your attention to the following clause in the Infectious Diseases Prevention Act of 1902, part 2, section 4, which reads:—"In case the medical officer of health is in possession of evidence that any person in the district is suffering from infectious disease, attributable to milk supplied within the district from any dairy situate within or without the district, or that the consumption of milk from such dairy is likely to cause infectious disease to any person residing in the district, such medical officer shall, if authorised in that behalf by an order of a justice having jurisdiction in the place where such dairy is situate, have power to inspect such dairy, and if accompanied by a veterinary inspector, or (a) some other properly qualified veterinary surgeon (b) to inspect the animals therein, and if on such inspection the medical officer of health shall be of opinion that infectious disease is caused from consumption of the milk supplied therefrom, he shall report thereon to the local authority, and his report shall be accompanied by any report furnished to him by the said veterinary inspector or veterinary surgeon, and the local authority may thereupon give notice to the dairyman to appear before them within such time, not less than twenty-four hours, as may be specified in the notice, to show cause why an order should not be made requiring him not to supply any milk therefrom within the district until such order has been withdrawn by the local authority, and if in the opinion of the local authority he fails to show such cause, then the local authority may make such order as aforesaid, and the local authority shall forthwith give notice of the facts to the sanitary authority and County Council (if any) of the district or county in which such dairy is situate, and also to the Local Government Board." I draw your attention to the words, "If on such inspection." It is quite possible that the medical officer might find everything scrupulously clean, and still the milk be a source of infectious disease, and that did occur in the case of the diphtheria outbreak. The medical officer made an inspection of the dairy and found it scrupulously clean but we had reason to believe that the milk was causing diphtheria, so that I think the powers are not sufficient.

6327. Do you not think that in a case of that kind it would be desirable that the powers should be vested in the local authority to prevent the sale of the milk?—Yes, the epidemiological evidence may be perfectly strong, but the physical evidence may be weak.

6328. Mr. O'BRIEN.—Do you know of such cases as what might be called diphtheria carriers, where a person has apparently been sent out from a hospital as cured of diphtheria?—Yes, they do occur.

6329. And you may get someone working in a dairy or creamery who has never to his or her knowledge had diphtheria?—Yes.

6330. That there are certain cases where a person seemed to become a permanent carrier of diphtheria?—Yes, that has actually occurred. There was a case of a child who was not, so far as we knew, engaged in handling the milk, who infected the milk through the mother, who was engaged in handling it; and we had other cases in Belfast where diphtheria occurred because the attendant carrying the milk had actually had diphtheria.

6331. I know of such a case in Belfast where a child was treated for months in a hospital, and was sent out apparently free from diphtheria. After being sent out it was found, on a swab being taken from the throat, that there were germs; and this child has been now for a year living in isolation, and one does not see when that child is going to get rid of it?—Such a child should not come in contact directly or indirectly with the milk supply.

6332. The difficulty is to find out whether there are children like that who have apparently had a very slight attack. They are sent out as cured, and they still may be diphtheria carriers?—Yes.

6333. Of course, in the case of persons who had typhoid, one has got to recognise now that they may carry it for years, and a person may become a permanent typhoid carrier; but heretofore it has not been thought so of diphtheria, but now there is no doubt that a person may become a diphtheria carrier for a year after the disease was supposed to have been cured?—Yes.

6334. The CHAEMAN.—Are you in favour of licensing dairy-dealers?—Yes. I think in the present circumstances, and from what they have been able to do in New York in that way, licensing would be extremely valuable. In New York they are able to obtain control of the supplies in the outside areas. One of the conditions on which the licence is granted is that the dairymen within the area of New York shall give a list of the sources of the supply of his milk. At intervals an inspector from the city is sent to check them. If the cow-keeper refuses admission to his premises the inspector reports to the New York dairymen—"Your licence has been granted on the condition that we will be allowed at all times access to your sources of supply, and in one case we have been refused, and we will have to withdraw your licence." No licence has ever to be withdrawn, because the dairymen immediately has the restriction withdrawn, and invites the inspector to go and inspect the premises. To that extent licensing would be useful, but I do not think it would solve the whole difficulty.

6335. Do you think that it would be helpful in the solution of some of the difficulties that arise?—It would.

6336. You would, in the first instance, impose conditions as to the character of the person making the application for a licence—you would not issue licences indiscriminately to everyone that applied?—No. This is the vicious principle in registration, that one has to register anyone who comes forward, even if we know that he was a typhoid carrier.

6337. I take it that you would be in favour of refusing a licence to a person who was guilty of breaches of the Act or the adulteration of milk?—Yes, as in the case of the ordinary public-house licensee.

6338. You would see that there were proper conditions for the keeping of the cows before you granted the licence?—Yes. There are two methods by which we would be able to get clean milk. First, there is the power of the consumer area to inspect the supplying areas, and secondly, compulsory sterilisation of milk before final distribution.

6339. You would be in favour of that?—I think that that would be desirable. I don't know that it would be practical, but it would be very desirable; but I think that we may trust to the growing demand of the public for sterilised milk, and that demand will compel the dairymen to sterilise his milk.

6340. Do you think that the food properties of the milk are in any degree impaired by sterilisation?—Not if the temperature is not raised above a certain point.

6341. What temperature would you suggest?—125 to 135 degrees would be sufficient.

6342. Mrs. McNEILL.—Continued for how long?—For 15 to 20 minutes. If it is raised above that temperature, as in boiling, then I think it deteriorates the nourishing qualities of the milk, and there is some evidence that this class of milk has produced rickets.

6343. The Chairman.—We have had evidence on that subject before, and that is the reason I put the question to you, as to whether you believe the food properties of the milk are impaired by sterilisation if carried to a temperature of 300 degrees?—I think it would if carried to 300 degrees. I think pasteurisation does not diminish the food properties of the milk, but sterilisation, which includes boiling, would.

6344. Does pasteurisation cause pure milk?—The after-feeding may contaminate the milk.

6345. Would sterilised milk also be subject to the same danger?—Yes, it could receive its quota of diseased germs just the same.

6346. Lady Eversham.—Is it not a fact that milk sterilised or pasteurised is more liable to infection than untreated milk?—Is so far as you have destroyed all the other unfriendly bacilli in the milk, you have a clear field for any new bacilli.

6347. Mr. Wilson.—Do not the lacto seed bacteria protect the milk from putrefaction?—To begin with, you have a certain number of bacteria in the milk; after a little time there are fewer, but after another week there is an increase again, showing that in milk there is at first some sterilisation quality.

6348. The ordinary fresh milk comes before it putrefies. I would like to put to you the same question I put to Professor McWenney in Dublin. I have here figures taken from the annual Medical Report of Copenhagen for 1901. They show that twenty-six out of one hundred and five samples of pasteurised whole milk contained upwards of a million bacteria per c.c., and that these contained chiefly not of lactic acid bacteria, but of the bacteria of putrefaction, and the conclusion arrived at was that there are serious doubts as to whether it is advisable to endeavour to obtain general pasteurisation of market milk. Would that not induce you to qualify your proposition of universal sterilisation?—I would certainly qualify it; but what I have said is that it is possible to contaminate the milk after sterilisation. I quite recognise the fact that if sterilised milk contained a million bacteria per c.c. that is rather in excess of what is desirable, but I was going on to say that that, in my opinion, was not the best way of procuring a pure supply of milk. The third method I would recommend is the obligation on the part of every local authority to appoint a veterinary inspector under the supervision of the Local Government Board's Veterinary Inspectors, and a super-superintendent Local Government Medical Inspector to interpret facts and help the Medical Officers of Health. I think it is beyond what might be expected of ordinary human nature, that an official appointed by men who themselves are concerned in the dairy trade, will act against the interest of the persons who have given him their patronage. Therefore, I think it is not due to expect outside areas to have such impartial and such judicious veterinary inspectors as that they will bring to the spot men on whom they are dependent for their daily bread; but if, over the local dairy inspector, there was a supervising authority who might come down on him at any time, it will be felt by his patron that he must carry out his duties, and that secure a clean milk supply for the consumer authority over the whole country at one time.

6349. That view has been represented to the Commission by other witnesses as well as yourself, and it seems to be the generally received opinion that it is undesirable to expect a professional man, living in the district and depending on local patronage and support, to bring up people under whom he earns his livelihood before the magistrates?—I quite agree.

6350. And for that reason you think there should be some supervising central authority who should overlook the administration of the officials appointed by the local authority?—Yes, I think that is absolutely necessary. I may refer before I finish to the question of dirty milk.

6351. We would like to have your views?—Now I want to say a word or two with regard to dirty milk, and to make that point, that it is not only objectionable from a sentimental point of view, but from the hygienic point of view. I suppose your attention has already been drawn to a report of the London County Council on non-tubercular mortality amongst guinea

pigs. The question arises through the bacteriologist's finding, in their endeavour to detect tubercular milk by the inoculation of the milk into the guinea pigs, that a great many guinea pigs died before twenty-eight days, and this raised the question as to what was the cause of this non-tubercular mortality amongst guinea pigs, and they asked the Lister Institute to go into the question, and they found that out of 9,044 guinea pigs 3,049, or roughly one-third, died before twenty-eight days of some non-tubercular disease. The cause of death was found to be bacilli, evidently introduced with the milk sediment into the guinea pigs, and also bacteria, in the organs of these guinea pigs, that had not been introduced with the milk, but had actually formerly been found in the guinea pigs' intestines, and were supposed to be innocuous. Evidently what had happened was that resistance was so lowered in the body proper that it allowed the invasion from the intestines of what was supposed to be harmless bacilli, which actually produced the death of the guinea pig. Dirty milk may produce such a lowering of the vital resistance as to give an opportunity of poisoning from the intestines, or from bacteria already stored up in the glands of the organism. I invite your attention to the fact that given a certain number of bacteria—that is if they become excessive and of a certain class—you have immediately diarrhea set up, and an opportunity given for the bacteria of the dirty milk to invade the debilitated system, so that I want to enter a very warm plea against dirty milk, and to say that it is not to be regarded from the point of view of sentiment only, but of health.

6352. As a source of danger?—Yes, a source of great danger. Perhaps you will have something to ask Professor Symonds, our Bacteriologist, with regard to his views on dirty milk. I have had no conversation with him, but I invite your attention to his analysis for the year 1902 in our Medical Officer's report for that year. You will see that the number of bacilli found in Belfast milk is as low as 9,000 per c.c., and goes up to 14,000,000 per c.c., and I invite you to think what that means. I just want to raise the question finally of the standard of cleanliness, and I think that that standard should not be a question of the apparent dirt in milk or the minimum amount of dirt, but a question of the number of bacteria. Of course, I suggest it is open to any Medical Officer of Health to say that any milk containing a certain number of bacteria is unfit for human food, but I think the law should define what is the minimum that should be allowed. These views vary much. Some authorities put it at 30,000 bacteria per c.c., but when it comes to be a question of 1,000,000 I think it is obviously beyond the danger point, and when it is 14,000,000 it is only to be described as appalling. I also want to put in another point with regard to dirt in milk. I have spoken of dirt in milk as one of the causes of lowered vitality, but there is a source of danger in the dirt of milk is so far as the conveying of phthisis from the mares by the cow is concerned, and I draw your attention to a paper read by Dr. E. C. Schneider, of the Department of Agriculture, Washington, in which he showed that about 45 per cent. of cattle apparently healthy, and known to be tuberculous only because they had been tested with tuberculin, intermittently passed tubercle bacilli with their faeces. When the number of such cattle was kept under continued observation, the percentages that expelled tubercle bacilli per rectum was found to be double to eighteen months, and both the frequency with which the bacilli occurred and the number found in the individual animals also showed an increase. Among twelve cows, bacilli in the faeces were first found in five, but before the end of two years the number had risen to ten. The proof that the acid-fast bacilli, demonstrated by microscopic examination, actually were tubercle bacilli was established by (1) producing fatal generalised tuberculosis in guinea pigs inoculated with the faeces; (2) causing fatal generalised tuberculosis in hogs by feeding them on the faeces, and (3) causing fatal generalised tuberculosis in hogs and guinea pigs by inoculating them with milk scalded with small quantities of such faeces, and with butter made from such scalded milk. Pure cultures of tubercle bacilli isolated from the infected guinea pigs caused fatal tuberculosis in cattle in subcutaneous inoculation. Dr. Schneider further observed that with rare exceptions commercial milk could be shown on examination to be contaminated with cows' faeces, and concluded

that considering the wide prevalence of tuberculous amongst cattle, the presence of fecal material in milk was frequently associated with the presence of the virulent tubercle bacilli. Cream and butter were also exposed to this danger.

6353. Mr. O'Hare.—Did the 40 per cent. of cattle also pass the tubercle bacilli through the udder?—No, not necessarily.

6354. Mr. Williams.—You do not suggest that 40 per cent. of reacting animals excrete bacilli?—Oh no, and I am quite convinced of this, that there are tuberculous animals that don't convey bacilli through their milk.

6355. Mr. O'Hare.—But in that case they may be excreting it through the faeces?—Yes, that is the point.

6356. Lady Esmahan.—Do you happen to know if the milk coming into Belfast from the country districts is inspected at the stations?—It is.

6357. And has it ever been condemned because it had been discovered as dirty milk?—Not for being merely dirty milk.

6358. It is your opinion that it would be advisable to have a Veterinary Surgeon appointed by the Local Government Board or a central body in Dublin who would supervise the local Veterinary Surgeons?—Certainly.

6359. Evidence has been given to me that it would be better to have the Veterinary Surgeons appointed by a Central Authority—whole-time officers?—That would be better. I was assuming that each district would appoint a Veterinary Surgeon for itself to be supervised by a Local Government Board Inspector.

6360. I do not see how the local Veterinary Inspector would be more independent in that position, because he would have to prosecute those who appointed him?—But he would have the excuse that the Local Government Board might dismiss him if he did not carry out the duties of his position.

6361. These Councils give such small salaries to the Veterinary Inspectors, that would it not be much better, say, to have one for a county, and let him be a whole-time servant?—Yes, that would be very practical, because the Councils could combine together to appoint one officer.

6362. He could be appointed by the Central Authority?—Yes, by the County Council.

6363. No, not the County Council, but the Local Government Board or the Department of Agriculture, whichever would be the Central Authority?—Would there be no conflict between the Local Authority who pay and the Local Government Board who appoint? Would you suggest that they should pay part of his salary?

6364. Yes.—I think that would be most advisable.

6365. Did you know that the milk in New York is standardized?—Yes.

6366. Would you recommend that?—I think it would be altogether too complicated, and not worth while.

6367. Certified milk is allowed to contain 30,000 bacteria per c.c., and inspected milk not more than 100,000 per c.c. bacteria?—Yes. I feel from the administrative standpoint that it would do the very thing that we have just been feeling is an objectionable circumstance—it would raise the price of milk, I am afraid. The more complicated you make the administration, I am afraid, the dearer the milk will become.

6368. Are there many goats kept in Belfast?—I think there are a few.

6369. What is your opinion of goat's milk?—I think there is no more healthy milk probably than goat's milk. It seems to have even a greater degree of sterilisation than cow's milk, and it is practically free from tuberculous. I do not know that any goat killed in the slaughter has ever been condemned for tuberculous.

6370. You say that in Belfast dried milk is more expensive than whole milk?—Yes. Condensed milk is cheaper.

6371. What is the process of dried milk used—is it the "Hafners" process?—I am not acquainted with the Hafners' process.

6372. It is also made in Cork?—I was not aware of that.

6373. Mr. Wintour.—Do you agree with me that the most dangerous element in the whole dairy trade is the clinically diseased udder?—I quite agree.

6374. And the next most dangerous item is the clinically and obviously tuberculous breast for its excreting bacilli?—Yes.

6375. That these are the two most dangerous elements in the whole trade?—Yes.

6376. And if we can by any manner of means eliminate these animals we shall be reducing the risk of the dairy trade to the public health very largely?—I agree.

6377. The evidence we have got before us has gone to suggest that the number of such animals is smaller in Ireland than in England?—That is as regards animals obviously diseased; but if you take into account the animals that are not obviously diseased, I do not know that we are less exposed to that danger in Ireland than in England.

6378. We have had a large body of evidence that there is much less incidence of tuberculous in Ireland than across the Channel, and the Belfast evidence has helped to prove that that is so, because the bacteriological tests have failed to find bacilli in the market milk?—That is so. I think that in the Medical Officer's Report there is only one case, but at the same time you must remember that in such an enormous number of other bacteria they might not be detected. It is like looking for a needle in a bottle of straw.

6379. The bottle of straw produced four or five per cent. of affected samples in Manchester?—Yes.

6380. The evidence is that relatively there is less clinical tuberculous in Ireland than in England, and the parallel evidence of Belfast tends in the same direction?—That there are less tuberculous animals?

6381. Yes. If we could devise a method by which we would be certain that a clinically diseased animal, about which there is no doubt whatever, is not contributing to the milk supply, that would be a piece of very good work—that is to say, that we was an inspection system sufficiently careful in order to be quite positive that there are no clinically diseased animals contributing to the milk supply?—That would be desirable.

6382. We cannot say that at the present time?—I do not think so.

6383. I would go a little further than the last Order so far as the tuberculous udder is concerned. In order to eliminate the tuberculous udder it is right that the private owner should come under the Order?—Yes.

6384. Are there any figures about the number of tuberculous udders that have been actually discovered in the Belfast area?—Mr. Jordan, the Veterinary Inspector, will give you evidence on that point, not that one case that was given by Professor Symonds was discovered through his activity. With regard to the dairy trade as a whole, there is a tendency to accuse the dairy farmer of being the criminal, whereas the other stages in the process of handling are possibly quite as much to blame for the condition of the milk when it reaches the consumer.

6385. It has been said that in England practically 60 per cent. of the contamination of the milk was due to the contamination along the road and in the rooms and houses of the consumers?—It must be said that the greater the distance between the udder and the consumer, the greater the amount of contamination. I would like to observe that judging from the account of tuberculous animals that are slaughtered at the abattoirs—of course there are not many—about 5 per cent. of the animals are found to be tuberculous; but I find that mainly these animals have been cattle that had been reared in the houses, and although tuberculous is found in bullocks reared entirely in the open, the larger the animal is reared in the house the more likely it is to be tuberculous.

6386. With regard to the standard of bacteria as to the maximum limit, the principal danger that you would want to get out is the local contamination?—Yes.

6387. You do not object to the ordinary tests and bacilli?—Metchnikoff has advised us to use them even if we had pure milk.

6388. Would it not be a more feasible standard, and one which would reach the desired object more promptly, to take the germs of putrefaction into account?—Yes.

6389. Microbial contamination? That would be a very good thing. I put it that the number of the

bacteria should be the standard of cleanliness?—I quite agree that the nature of the bacteria should also be taken into account.

6390. Would it be possible in this country if we also had a temperature standard in the milk?—Yes, because that influences the number of bacteria.

6391. The two go together?—Yes, and also the time of taking your sample is important.

6392. Mr. O'Brian.—Can you tell me the price of milk in Belfast?—I understand the standard milk varies in the summer and winter, and that it is as high as 4s. a quart. I know that at present there is other milk being sold at 3d. a quart in Belfast. Pasturized milk is cheaper on account of the greater amount of handling it requires than the non-pasteurized milk.

6393. What is the price of separated milk—is it brought into Belfast at all?—Yes, it could be brought from certain circumstances, and it is also earned. I think it is about a penny a pint.

6394. The separated milk in my own county (Limerick) is charged at one penny a gallon?—Theresa says.

6395. It is valued at that for farm purposes. I am talking not of skimmed milk but of separated milk—the separated milk from the creamery where it is done by centrifugal force?—I was speaking of skimmed milk really.

6396. There is a good deal of fat left in the skimmed milk?—Yes, but it is not very high.

6397. And as the separated milk all the fat is removed—is the creamery separated milk?—I do not know much about that.

6398. You do not know that it is sold?—I am not aware.

6399. Is the condensed milk sold tinned whole milk?—No, but there is a "Cold" brand said to be condensed whole milk.

6400. Most of the tins of condensed milk that you use about here, are they labelled as condensed separated milk or as condensed milk?—I do not know that they are. They are called condensed milk.

6401. What price is paid for it?—I am not quite sure of what the price would be. I think Mr. English will be able to tell you about that.

6402. Do they use much oatmeal porridge here?—I find that in proportion as the inhabitants become accustomed to town living they do not use it.

6403. It is used in the country?—Yes, very largely, and also in the town. You must have a porridge stomach in order to take porridge. What I mean by that is that when children are reared from early infancy on concentrated food, such as meat, their stomach is not so large as in the case of persons whose stomachs have been enlarged by the use of potatoes and porridge.

6404. The Chairman.—It is a question of space?—Yes.

6405. Mr. O'Brian.—You believe in the value of oatmeal porridge as a food?—Yes, next to milk.

6406. And for grown-up children?—I am not speaking of infants—and for poor people porridge, with some of the cheaper forms of milk, such as skimp milk or separated milk, it would be a healthy and cheap form of food?—Yes. If the infants used milk up to nine months old, and after that some form of starchy food.

6407. Do you find that the use of oatmeal porridge is apt to be dying out?—In the towns it is.

6408. You were talking about the dirt in milk. Have you much diarrhoea in Belfast in the summer?—We have tremendous epidemics of it.

6409. And do you put that down mainly to dirty milk?—Yes, and to sour milk too.

6410. That also has the effect of giving them diarrhoea?—Yes.

6411. We had evidence given by a lady doctor in Dublin, who works in a very poor district, and who stated that the infantile diarrhoea, in her opinion, was

due, not so much to the dirty milk, as to the dirt that was picked up by the infants playing about the street in the summer, and some dirt getting into the house in the summer—would you agree with that?—It would be an element; but one has to consider that in the case of infants under a year old they do not pick up dirt in the street. They are fed perfectly on milk. One has also to consider the way in which the poorer people keep their milk. In some cases the window of the scullery, where the milk is kept, overlooks an alley, from which contamination would arise. I think that is one of the main sources of danger.

6412. In my own particular district down in Limekiln, the houses put up under the Labeaux Act have their ladder looking out on the pigsty, but that is done under Local Government Board supervision, and I suppose it must be slight. Have you heard anything of Mr. Falls, who is experimenting with regard to the process of dealing with milk in order to keep it for a long time. It is the same process, I think, or practically the same, as that used by the Vacoa milk. In Mr. Falls' process I gather that the fat globules in the milk do not run together and rise, and therefore the fat remains all through the milk, and it is treated in such a way that it will keep for a very long time. Some of this milk went to the Argentine and back again and was fit for use, and four days after opening a bottle the milk was good?—I do not know anything of that process.

6413. You would recognise the value of being able to keep the milk fit for use for a long time as being one of its advantages for poor people?—Yes.

6414. If you got a milk that would keep for two or three days it would very much affect the question of the supply of milk for poor people—if you could keep it in bottles?—Yes.

6415. A great deal of the present danger from milk in the very poor districts is that the people get their supply, perhaps, in the morning—a halfpennyworth to colour the tea in the evening. It is kept in a room with every sort of germ about it in an open, and probably dirty, vessel. If you could get a milk that you could keep in quart bottles, two or three times a week, and which would be more likely to be kept closed, there would be less danger of infection?—Yes. A good deal could be done if the ideas which have been brought forward at this Commission with regard to cleanliness of the milk supply could be brought into the people's minds in such a way as to induce them to work against the contamination of the milk supply.

6416. I suppose you recognise that the education of the people is really a better preventive than almost anything else?—Yes.

6417. If you got people to recognise that dirty milk is poison, that to be dirty generally is very dangerous to health, and that milk is a very valuable food, and things of that sort, which are rather rudimentary, you would have diminished a lot of the trouble?—Yes.

6418. Dr. STEWART WOODHOUSE.—With regard to the dirt, what does it mainly consist of?—Of faecal of various kinds—of particles of manure and bits of hay and straw.

6419. In your opinion should the milk be strained before it is sold to the purchaser?—Yes. The obvious contamination should be removed, but that is not sufficient. It might contain injurious bacteria unless one filtered it through a filter.

6420. In your opinion a good deal of summer diarrhoea is due to impure, dirty, or fermented milk?—Yes.

6421. Do you think that milk should be cooled down after milking, as is to be done the same before the fermentation commences?—Yes, and the cooler it is kept the purer it will remain.

6422. You think it injurious to use preservatives?—Yes; more injury might arise from the preservatives than from the bacteria themselves.

The Chairman.—Thank you very much, Dr. Tremay, for your very important and interesting evidence.

Dr. H. W. BARRIE examined.

6423. The Chairman.—You are Medical Superintendent of Health in Belfast?—I am.

6424. Do you hold any public position other than that?—No.

6425. Are you engaged as private practitioner?—No, sir.

6426. Your time is exclusively devoted to public health in Belfast?—Yes.

6427. Is it your opinion that the milk supply is a matter of extreme importance from the public health point of view?—It is of extreme importance, certainly.

6428. Do you consider that the conditions under which milk is supplied at the present time are absolutely ideal?—I do not.

6429. You think it could be considerably improved?—Very considerably, indeed.

6430. I take it that you have no authority to proceed outside the city area for the purpose of making any inspection in connection with the city supply?—None, except in case of infectious disease.

6431. And then only under a magistrate's order?—Yes. I may say that we have made visits to the country, and have been allowed to make inspections.

6432. But you had no right to enforce the inspection if it was objected to?—No.

6433. Do you think it is desirable that the power should be conferred?—Yes.

6434. Do you think it is any unfair competition that dairy-keepers in the city, where the Dairies and Cowsheds Order is strictly enforced, should compete with other dairy-keepers in outside districts where the Order is not in force?—Yes, I think so.

6435. And you would be in favour of a uniform application of the Order?—Yes.

6436. Are you in favour of licensing?—Yes, I advocated that in my Report for 1907.

6437. And you would make it a condition of licensing, that a person making an application should be one whose character should bear investigation, and whose premises would be in a suitable condition to keep cows in a healthy condition?—Yes.

6438. And you would withdraw the licence, I take it, from a person who was persistently evading the regulations?—Yes, I think the licence should be granted for one year only.

6439. Subject to renewal?—Yes.

6440. And that the local authority should have the right to refuse granting a licence if the applicant was unsuitable?—Quite so.

6441. Of course, it is not part of your duty to make any inspection of the premises in which cows are kept?—Well, I have done that up to the present.

6442. You have made inspections?—Yes, frequently. Of course, we have a Veterinarian.

6443. I rather thought it would be confined to him or to the Dairy Inspector; but you yourself have made inspections?—Yes.

6444. Do you find that the purveyors of milk in the city area are willing to conform with the regulations, and are anxious to meet you in the carrying out of the recommendations you suggest?—Generally they do.

6445. Taking them as a body they are reasonable from that point of view?—Yes.

6446. With regard to the inspection of milk-shops, does that come under your purview?—Yes.

6447. Do you think that the conditions under which milk is sold are conducive to the public health, and to the proper keeping of milk, and supplying it in a pure and hygienic condition?—I think the conditions under which milk is supplied in Belfast reach a high standard. Large numbers have been removed from the list owing to their not conforming to our regulations, or on account of the premises being unsuitable.

6448. Have you sometimes refused to register premises that you believed to be unsuitable?—No, you must register first and take your proceedings afterwards. That is one of the faults I have to find with the Order.

6449. You must register indiscriminately any person who makes application, whether his premises are suitable or not?—Yes, and you have got to worry over all the defects you find afterwards, whereas if he is licensed you would examine the premises first, and if not suitable give no licence. If he promises to conform with our recommendations he will get an adjournment from the Court.

6450. The administrative authorities do not always enforce the Order rigidly?—Yes. I think that in Belfast we enforce it as strictly as we can.

6451. I mean the Courts?—Well, I think if they were a little more severe it might be better for us.

6452. You do not think that they seem to realise the importance of the efforts made by the Local Authority to ensure the fulfilment of the conditions under the Order?—I think they do; but when you bring a case to Court there are many conditions put forward. There are always two sides, of course.

6453. And then the good nature of the authorities is imposed on in some instances and time is given, and the administration is considerably impeded?—Well, from time to time that occurs.

6454. Under what conditions have you prosecuted the occupiers of these shops before the magistrates—for breaches of what conditions?—We have prosecuted them for dirty byres.

6455. You are dealing with the cow-keepers?—Yes.

6456. Are there not some purveyors of milk who do not keep cows at all?—Yes. Our prosecutions are where we find the milk uncovered and particles floating in the milk.

6457. Do you ever prosecute for storing the milk in unsuitable places?—We notice them of that, and they make alterations to satisfy us.

6458. So that it is only necessary to point out to these people that a prosecution would ensue if they did not carry out your recommendations?—Yes.

6459. That is your evidence?—Yes, sir.

6460. Have prosecutions been instituted by your body for want of cleanliness on the part of persons engaged in the milk trade—for dirty hands, for instance?—Yes.

6461. What sort of penalties do you get imposed in these cases?—3/- or 10/-.

6462. That seems to be a fairly considerable fine for an ordinary working man—that seems to be fairly drastic?—I think probably if the magistrates were more severe we would not have so much trouble with these people.

6463. You would not have so many prosecutions?—I think not.

6464. Is it due to the careless habits of the attendants themselves or want of proper supervision on the part of the cow-keepers?—Are we dealing with the town byres?

6465. Yes.—Well, I think it is want of supervision on the part of the owners, because, as a rule, they are supervising the work themselves. We do not have many of these cases in the city. The city milk is clean.

6466. You think the milk produced in the city itself is produced under conditions that are more cleanly and healthy than the milk that is brought in by rail?—I am quite sure on that point.

6467. Is any inspection made by your Inspector of the milk sent in from the country districts?—Yes. We see the sort of milk that comes in, but we are practically powerless unless the milk is delivered inside the city.

6468. I mean when it is delivered inside the city—what steps are taken to see whether it is cleanly or otherwise?—There is a defect in this Order, because the milk is already sold, and unless it is exposed for sale we are powerless. With regard to the dirt part, we are powerless.

6469. So that if, in the ordinary course of his duty, your Inspector found that the vessels in which the milk was supplied were in a dirty condition, he would have no opportunity of prosecuting for that alone?—None whatever. I have seen milk myself in a condition that I highly disapproved of, and yet we were powerless to do anything.

6470. Do you not think that that is a condition that should be improved?—I think that if in Article 18 of the Dairies and Cowsheds Order the word "protect" was used instead of the word "prevent" in line three, so as to read—"Protect the milk from any infection or contamination," we could proceed against the container of the dirty milk.

6471. Whereas at the present time, no matter how dirty the milk is, you feel you have no power?—That is so.

6472. Have you ever notified to a Local Authority where such milk as that would be sent from, that you had discovered that the milk which was being sent into your city and raised under their supervision—that they had say—was in an unclean condition?—I am not quite certain that we have notified an Authority, but we have notified the person from whom the milk came.

6473. With what result?—Practically none.

6474. Did they defy you?—I would not say that, but by and by when we take a sample we find it again wrong.

6475. You had no practical results as far as the improvement of the milk was concerned?—Practically none.

6476. We have already had evidence from Dr. Thomson and Dr. Trimble with regard to a milk supply being a source of infection, and it is unnecessary to bring you over that ground again. Are you in favour of having all persons connected with the

vending of milk subjected to the Widal test for the purpose of ascertaining if they are typhoid carriers?—I would not go quite as far as that.

6477. Do you think it is an unreasonable imposition to put on the people in the carrying of their livelihood?—I think we are scarcely far enough advanced for that. I think it would be reacted severely.

6478. Is your faith in the test not absolutely fixed, or do you think its application would be subjecting these people to an unnecessary inconvenience?—From my own experience in the city, we have had only about one small outbreak for each year for four or five years, and on taking steps to prevent the milk coming in we stopped the disease, and the point is whether it would be good policy to subject all these people to the test for the sake of an occasional case like that. Of course, it would be all the better if it could be done.

6479. Of course, the other aspect of the question is that valuable lives may be lost as consequence of the neglect?—I would not object to it, but I would not advocate it strongly.

6480. Do you think it would lead to a restriction of the supply?—I would be afraid it would.

6481. You think you can only proceed at the rate of apical public opinion would justify at the moment?—That is so.

6482. You can scarcely aim at ideal things in the first instance?—I think you must educate public opinion.

6483. You are in favour, I see, from the summary of your evidence, of compulsory cooling of the milk as soon as it leaves the cow, to about 40 or 35 degrees Fahr., in order to prevent bacterial growth?—Yes. That would prevent the multiplication of the bacteria to a considerable extent, and prevent the milk souring. I estimate in the country that it is a common thing to keep the milk from the evening before to the next morning and send it down in that way, and when they do not cool the milk there is no doubt there must be an immense multiplication of the bacteria.

6484. Has your attention been directed to tuberculous cows by the Inspector?—Yes, as a few instances.

6485. On a couple of occasions you have had the animals slaughtered?—Yes.

6486. Of course, there are some cows that are obviously diseased, but there are other cases which are doubtful and problematical. What steps are taken with regard to these cases—do you ask the owners to have the animals subjected to the tuberculin test?—Yes.

6487. And do you find it is objected to by the owner?—In some cases, but not in very many.

6488. What results have you had from the application of the test?—Tubercle has been found on several occasions.

6489. What became of the animals?—We had them slaughtered.

6490. Your Public Health Committee never institutes to slaughter an animal as soon as it is certified to be suffering from tuberculosis by the Inspector?—No.

6491. Do you find owners of cows willing to co-operate with you in the disinfection of tuberculous cows from herds?—They are generally willing to co-operate.

6492. With regard to compensation, what do you do?—We compensate the owners.

6493. Are you of opinion that the same regulations which govern the production and sale of milk should also apply to milk products?—I am.

6494. And you would subject people who were engaged in this branch of the trade to the same restrictions that you would impose on milk vendors?—Quite so, because I cannot see that there is anything to prevent buttermilk conveying disease. The churning temperature would not kill the bacteria. Besides that, I do not think that the people who make butter and do not sell the milk are very careful where they store the milk. I have seen it in bedrooms and in kitchens.

6495. And in all sorts of unsuitable places?—Yes.

6496. Except in the two cases to which reference has already been made by previous witnesses, have you ever traced an outbreak of infectious disease to the milk supply from outside areas?—I presume one of those you were told about was the 1906 case.

6497. One was in reference to diphtheria?—There was an outbreak of typhoid in 1906—twenty-nine cases from Danmory.

6498. Were you satisfied that the milk supply in that particular case was the source of infection?—It was finally discovered that the milk had been infected by a typhoid carrier, and strange to say, she was connected with a creamery previous to that, and the same illness occurred.

6499. Mr. WILLIAMS.—That was Mrs. Burns?—Yes.

6500. The Chairman.—When this typhoid carrier was discovered, did the owner discontinue her from his service—the milk supply was stopped by you?—It was not in my office then.

6501. But by whatever Public Health officer was acting at the time?—Yes. I think things had gone so far that the owner of the dairy had interviews with the Public Health Committee, and it was settled sensibly in that way.

6502. You really had no legal power to forbid the sale of milk, but the owner of the dairy paid recognition that if he got into conflict with the Public Health Authority it would not do him any good?—Yes. Under the Infectious Diseases Prevention Act, sec. 4, there would be power to take action, but in this case there could be no person found connected with the dairy who was ill, and there had been a doctor attending the dairy hands and he found no typhoid. The cause of the infection was discovered accidentally. The members of the Public Health Committee suspected the house where the milk was made, and examination was made and something was discovered.

6503. Did that man abandon the trade or take it up again?—I think he abandoned the trade altogether, as far as I know.

6504. Of course, that is one of the sources of danger—that restriction in the trade may compel people to abandon it altogether, and thereby decrease the supply?—Yes. If there was thorough cleanliness at the source of supply, and inspection of the dairy hands and of the cattle from time to time by the dairy inspectors; that would be a very good means of protection.

6505. Can you say whether the children of the working classes in Belfast get as much milk as is necessary for their proper development?—I am afraid in many instances they do not. I know, as a matter of fact, that very many of them do not get it, and that condensed milk is used. They say themselves that they are too poor to buy milk; but that would be better to buy some milk in small quantities than to use this other milk.

6506. I believe condensed milk is not more economical to buy in reality than the ordinary milk?—I think it would be found less, but unfortunately a large number of the poorer people do not take a constant supply. They buy a halfpennyworth, and that has to do for the day. Probably, when they are better educated, they will spend more money on milk.

6507. Is it a question of price, or the want of appreciation of the food value of milk, that prevents the parents from getting a sufficient supply?—In many cases I think it is want of appreciation of the value of milk.

6508. So, in reality, an educational movement needs to be started in order to show the parents that if their children are to grow up strong and healthy they must give them more milk?—Yes, our Lady Health Visitors do that work.

6509. But they cannot reach the entire population?—That is so.

6510. Any development of their work would be helpful to your officers in carrying out this idea?—Yes.

6511. Lady EVERARD.—How many cow-keepers are there in the city of Belfast?—About two hundred.

6512. And how many milk-shops, independent of the cow-keepers?—Between 1,600 and 1,800, I should say.

6513. Is the milk for the hospitals in Belfast inspected?—Yes, and samples are taken from time to time.

6514. And it is usually good milk?—Yes, usually.

6515. Do you know anything about dried milk?—I do not know much about it. I do not think it is used to any extent in the city.

6516. The milk that comes in from outside Belfast by rail, how is that inspected—are samples taken of it?—Yes.

6517. Where?—At the railway stations, in course of delivery.

6518. And if the cans are dirty what is done?—We have practically no power to do anything.

6519. When you take a sample and find that the milk is dirty, you can do nothing?—We might condemn the milk as unfit for food, and if it did not turn out to be what it looked like there would be trouble.

6320. The Chairman.—You would have to satisfy a tribunal that it was a source of danger?—Yes, and that is why I recommend a change in the 18th Article of the Order.

6321. Lady Eversham.—In Dublin evidence was brought before us that milk was kept in cans in the house, apart from the shop, and that samples were refused to the Inspector?—If it was a milk-shop, and the milk was for sale, I do not see what was to prevent the Inspector getting a sample.

6322. You could not go into a back room apart from the shop.

6323. The Chairman.—What Lady Eversham wants to know from you is this—in the event of a milk-shop having milk stored in a place independent of the shop, the vendor can allege that the milk in that particular place is not for sale, and refuse to give any sample?—I think they could do that.

6324. Has it ever occurred here?—No.

6325. We were told that it occurred in Dublin, and that the effect was persistently refused when she applied for a sample of milk for analysis; and that she subsequently saw come out of the shop some children who had been supplied with milk from some apartment in the house other than the shop; and that when she afterwards went in they told her they had no milk for sale, and the law was defeated in that way. No similar experience has arisen in Belfast?—No.

6326. Lady Eversham.—Is it your experience that the outside dairies supplying Belfast are registered, to the best of your belief?—They are not.

6327. Can you not inform the Local Authority that they are not registered?—We have done so from time to time, but you see the question is a very delicate one, and we want to work in harmony with the outside people if we can.

6328. The dairyman is liable to a fine if he is not registered?—Yes, but I have no recollection of seeing any fines for that. The difficulty is that if we brought this case under the notice of the Local Authority we would be exposing our own Inspector, and probably he would not be allowed into the dairies in the district.

6329. We have evidence that your Inspector does go outside the city area?—Our Inspector has gone out from time to time, and in the early years, say three or four years ago, he was allowed to inspect practically all the dairies. After the Local Authorities appointed their own Inspector they seemed to resent our inspection, and then it became very difficult, and we felt that if we gave the names and addresses of the people who did not register he would be badly received when he went out again. However, as a matter of fact, we did give cases to the Local Government Board that we were not satisfied with. They wrote to the Local Authority.

6330. Was any action taken?—Well, it was promised that they would be more careful in the future.

6331. The milk purveyors in Belfast, do they keep a book containing the names and addresses of the different places that they receive their milk from?—We have not asked for that.

6332. They are bound under Article 34 of the Dairies and Cowsheds Order?—I know that.

6333. Mr. WILSON.—In your experience, do you think there has been any change in the volume of milk sold in the streets of Belfast—has it increased or decreased?—Well, in my opinion, it must have increased, because there is no want of milk in Belfast.

6334. You have heard no complaints?—Except that I heard from a wholesale gentleman that he could do with more milk if he got it. That was the first I heard of it.

6335. You do not think that there is any reduction due to the enforcement of the Order?—No. Another point is that if the outside authorities would work in harmony with us, and allow us to inspect their dairies, they could assist us. In fact, an Inspector in the country told me that it would strengthen his hands.

6336. In England this right of outside inspection has not led to fruit?—No.

6337. Looking up your table of figures with regard to the milk supply, I see that sixty-six samples were analysed by Professor Symmers for tubercle. Those samples were taken indiscriminately from the ordinary market milk of the city?—Yes.

6338. And might be taken to represent the fair average sample of the city milk?—Yes.

6339. And so far, except in one case, Professor Symmers has failed to find tubercle in the market milk of the city?—Yes, that is so.

6340. Do you propose to continue that examination, although the results have been negative?—Yes.

6341. Is a guarantee?—Yes.

6342. And what you would like to propose is that in the event of a sample containing tubercle being found, you should have the power to go to the farm and find out the cow that gave that milk?—I think we have that power at present. That would come in under the Tuberculosis Prevention Act.

6343. You have not, in point of fact, made use of that power, for the reason that you have not found such a sample?—Yes.

6344. What are your ideas about the proposal of a Municipal dairy-farm?—I think it would be a good idea.

6345. Workable?—I think it would. I would like, of course, to see the milk brought up to standard without that. If the milk supplier did not keep up the standard I think that would be a good idea.

6346. You have at the present moment a municipal fund on a small scale?—Yes.

6347. How is it made up, and what happens to the money?—It is made up by voluntary subscriptions, and there is a box kept in the City Hall, and the visitors frequently contribute to it. The distribution is entirely carried out by our Health Visitors. When they get a deserving case they supply the person with a book containing fourteen tickets, each for a pint of milk, and we generally try to see that the milk is brought from a supply that we have confidence in.

6348. What does that amount to in money for the year?—Between £70 and £80 a year.

6349. I gathered that you did not consider that the ordinary persons in this city need enough milk in his house. Would you consider that the problem that Belfast has got to deal with is largely a question of a number of small houses where the quantity of milk required by the individual is so small that it is hardly worth anyone's while to cater for that demand?—I know that a large number of the very poor labourers have not a constant milk supply.

6350. What about the skilled labourers?—You would find in many cases that a pint of milk would do a whole family.

6351. For the day?—Yes.

6352. I suppose you would agree with the other evidence we have had before us, that the long tubes attached to children's feeding bottles should be made illegal?—We have been preaching it for years, and it is largely being done away with.

6353. And I suppose you would be in favour of standardising, as far as possible, the vessels used in the milk trade from the point of view of having them cleanly and not easily damaged?—Yes, I think that should be done.

6354. You spoke about the necessity of compulsorily cooling milk?—Yes.

6355. Fifty degrees, of course, is an approximately workable temperature in the summer months with ordinary spring water?—Yes.

6356. To get it lower than that would involve expense?—Yes.

6357. Because it would involve the use of soap?—Yes.

6358. And with regard to the other standard of bacterial content, would you consider it satisfactory to use the standard Professor Symmers has used?—Yes.

6359. You have no standard at present in bacteria or temperatures?—No, none is fixed.

6360. Mr. O'BRIEN.—Do you advocate the slaughter of all animals at the public abattoir under municipal direction?—Yes. I am in favour of that. I think that is rather a burning question at the present moment.

6361. Here in Belfast?—There are only a small number of private slaughter-houses in Belfast.

6362. The butchers, as a rule, do not slaughter the animals for food in their own premises?—Not as a rule.

6363. You look on that as rather a source of danger to the public health—this private slaughter?—Yes.

6364. And you would prefer to see all the animals slaughtered in the public abattoirs?—Yes. There are only about seven private slaughter-houses in the city, and we expect that they will disappear in the course of time.

6565. Would you advocate the distribution of milk throughout the city from central depots in the different areas, either owned by the Municipality or under the direct supervision of the Municipality, instead of leaving private individuals distributing milk which comes by rail and from different sources as at present, or milk distributed by a number of private individuals from their own depots or dairies in town?—Yes.

6566. You would instead advocate having all the milk that is brought into Belfast for distribution brought to definite municipal or publicly recognised depots in certain areas—the town being divided up into certain definite areas, each with its milk depot, and that the milk should be distributed from these depots; do you think that that would help in getting a clean supply, and also in preventing contamination from outside of infectious diseases?—The plan might appear to be very ideal, but I think it would be very expensive and cumbersome in the working.

6567. Expenses caused by the volume of the official?—Yes, and I do not think that the supply would be so promptly delivered as it is at present.

6568. You don't think that the officers of a public body are so promptly as private individuals?—While the milk was being gathered into the depots you refer to, it would, under present conditions, be delivered to the individual customer.

6569. Does the milk from the country go straight to the consumer's door, or come first to some dealer?—There is a large proportion goes to the depot of the wholesale man, and it is sterilised or pasteurised; but I think the sooner the milk is distributed after it is produced the better, and these depots you refer to would be rather cumbersome and expensive.

6570. Where there are at present four or five persons distributing the milk, would it not be better done from a central depot, and it would all come from a source that you could inspect more easily?—My opinion is that the milk produced in the city is delivered promptly, and that it would be a mistake to interfere with the present arrangements.

6571. You said that samples of milk were taken for examination at the railway stations?—Yes.

6572. How do you do that if the milk vessels are sealed?—As a rule they are not sealed.

6573. Are the lids properly strapped—do you find that they put under the lid dirty pieces of cloth?—They put paper. I saw a newspaper in one the other day between the lid and the vessel.

6574. And they don't seal the vessels?—No.

6575. They are not locked up?—No.

6576. So that anyone could take out milk and put in water?—It is quite possible. As a rule, we wait before we take the sample, for the man who is about to receive the milk to come up.

6577. On the whole, do you find that the railway companies treat the milk properly while it is in their charge—keep it in proper wagons?—I cannot say that. I think the railway companies might do more. I think they might provide a shed for the emptying of the milk. If they provided this accommodation the milk could be strained.

6578. Mr. WILSON.—At the present time, there is no provision at the railway premises for the milk trade?—No.

6579. Mr. O'BRIEN.—I think it is pretty much the same all over Ireland. You advocate the compulsory cooling of milk as soon as it leaves the cow?—Yes.

6580. Had you in your mind anything of the Danish system where they take out milk as I mentioned that they have a receptacle for a freezing machine at the bottom?—No, because it might be expensive; but they could use cold water in the country. If the milk is set in cold running water they can cool it down very considerably that way.

6581. That is supposing you have the cold running water handy?—I mean that the milk should be cooled as soon as practicable. I do not wish to put burdens on outside dairy owners, but to bring them up to the standard of the city and to co-operate with us. It seems to me that the outcousers can keep the milk as they wish, while the people in the city are under very strict supervision.

6582. Sir STEWART WOODHOUSE.—Do the milk vendors deliver the milk at the houses of the better class customers?—Yes.

6583. And, in addition, there are a large number of milk shops?—Yes, and there are some small dairy people who send the milk around in cans.

6584. Is from 3d. to 4d. a quart the price of the milk in Belfast?—Yes.

6585. You mentioned that the working classes do not get as much milk as they should?—Yes.

6586. Does that arise from any difficulty in procuring the milk or from poverty or ignorance of the value of the milk?—From ignorance of the value of the milk and also from poverty. It is hard to get them to understand that milk is the cheapest and best food.

6587. Are there any means adopted of educating the people in regard to the value of milk—any lectures or publications to impress on them the food value of milk?—There are Babies' Clubs and there are our own Health Visitors.

6588. Are those of recent introduction?—We have had Health Visitors for nine or ten years. We had only two at first, and we have eight or nine of them now.

6589. In addition to that, are there Babies' Clubs?—Yes, worked by the Women's National Health Association.

6590. Are there lectures delivered by the Women's National Health Association?—I don't say they have lectures, but they have talks at any rate with the mothers. The mothers are invited every week, and encouraged to go to the Club, and they are taught how to rear and clothe their babies, and they get information about their feeding.

6591. That ultimately must tell?—Yes. We want more of that sort of thing.

6592. You have had prosecutions for putting preservatives into milk?—Yes.

6593. Do you recognise that a certain amount of preservatives is allowable?—We don't allow any.

6594. Miss McNEILL.—In your Report for 1910, you state that the Inspector reported that defective sanitation is prevalent in the cow sheds, and that the provision for light and ventilation is very unsatisfactory?—That is in the country.

6595. Does that statement refer to the country?—Yes, it refers to the outside district.

6596. In the next paragraph the Inspector states he discovered that there are a number of cow sheds that were never inspected or registered?—Yes.

6597. Have these been registered since?—We don't know.

6598. And you have no means of finding out, as things are at present, whether these dairies are inspected or registered?—None, except by the good-will of the dairy owners themselves.

6599. Your Inspector could not say that the number of cow sheds you referred to in your Report has been registered since?—I cannot tell you, but within my experience I found in the country, in one day, two unregistered dairies, and they were sending in milk to the city.

6600. Have they since been registered?—No, because it was only yesterday I saw them. I saw one cow shed that had not been cleaned for three days.

6601. Lady EVERARD.—In the city?—No, outside.

6602. Miss McNEILL.—You state in your Report that the number of milk shops that ceased to sell milk in 1910 was 210?—Yes.

6603. Can you give the Commission an idea what caused such a considerable number to give up the sale of milk?—They came to get registered, and when our Inspector found that they were selling paraffin oil, I wrote to say that the place was unsuitable, and that was the end of it.

6604. These are people who have been trading as some things other than milk which you thought unsuitable?—Yes. Some of them sold milk in order to draw customers for something else they sell, and when the Inspector goes out he finds that they are selling paraffin oil and other things that would contaminate the milk, and they cease selling the milk rather than give up the trade in the other articles. In one year we had twenty-six dairykeepers in the city who gave up selling milk rather than comply with our regulations.

6605. I notice one hundred and seventy-nine new entries were added to the registers?—Yes.

6606. Were the premises examined before registration?—No, but afterwards, and they were found satisfactory, and they were allowed to remain on.

6607. There is also another table here in your Report with regard to the samples of milk taken for

analysis. You give the number of samples taken of butter-milk as one hundred and four, of which forty-three were found to be adulterated, and thirty-eight prosecutions were endorsed, and fines imposed amounting to £51. Later on, you give a list of samples taken of sweet milk as five hundred and seventy-two, fifty-one of which were found to be adulterated; there were thirty-four prosecutions, and convictions were procured in thirty-three cases, and the fines amounted to £38 10s. 2d.—Yes, that is what we have to complain of in some cases—that the fines are not sufficiently heavy. If the fines were heavier there would be less prosecutions.

6008. The fines for sweet milk were smaller in proportion than the fines imposed in the case of the butter-milk?—Yes.

6009. So that it was evidently regarded as a greater crime to adulterate butter-milk than sweet milk?—Yes.

6010. The CHAIRMAN.—Sweet milk is much more important as a food?—Yes, I think the fines are too small for the sweet milk.

6011. Miss McNEILL.—You have given a very interesting table, in your Report of the samples of sweet milk taken for analysis in 1910, and I was very much struck by some of the percentages of the fat. In one case—a sample taken in July—you say there was 1·67 of fat and 7·69 of solids not fat?—Yes, that shows adulteration of water.

6012. In December, you say, that the percentage of fat in a sample was 1·45 and of solids 8·33?—I think the water was very strong there.

6013. There was a prosecution in that case?—Yes.

6014. Do you recollect the fine that was imposed in that case?—I don't remember at the moment, but I can get it.

6015. The CHAIRMAN.—That seems a very fragment case?—Yes.

6016. Miss McNEILL.—I see in that lowest percentage in the table that you have 3 per cent. of fat and 7·70 of non-fat solids—was that supposed to be poor milk or adulterated milk?—That would appear to be good milk with water added.

6017. The solids are low?—Yes.

6018. It would be interesting to know the fine that was imposed in the case of the sample that contained 1·45 per cent. of fat and 8·03 of non-fat solids.

The CHAIRMAN.—If you could procure information as to the fine imposed in that case, we would be able to measure the importance that was attached to a case of that kind by the magistrates. It was a very fragment case?—Yes.

6019. Miss McNEILL.—910 was your highest percentage?—Yes.

6020. That was also in December?—Yes.

6021. The highest and the lowest were in the same month?—Yes.

6022. The CHAIRMAN.—I take it that the situation so far as Belfast is concerned has become more difficult than it was by reason of the failure of the adjoining Authorities to co-operate with the city Authorities in securing inspection?—Yes, it is for the reason I have stated.

6023. The condition of things is worse, and gradually growing more acute as time is going on, by reason of the knowledge that is being disseminated among the cow-keepers that they need not submit to the inspection of the Belfast Authorities?—Yes.

6024. Unless something is done to obviate that circumstance, the conditions of the Belfast milk supply must necessarily become more unsatisfactory?—Yes, I should say that would follow.

6025. So that the question is a burning one so far as Belfast is concerned, and some alteration should be made to enable the Public Health Authorities to go into the outside areas?—Yes. At the present time the outside Authorities are rendering our interference.

6026. And as time goes on this difficulty will increase?—It is not the dairy men, we believe, that are at the bottom of refusing us this inspection. We are led to believe that they are being led to do it by others.

6027. Lady EVERARD.—In the summer the cows that are in the city are sent out to the country on grass?—Most of them are, but in a few cases they are kept in the city, I am sorry to say.

6028. When they are outside your area, they are not subject to the inspection of your officers?—Once they are outside the city area they are outside our jurisdiction. There is, however, an eye kept on them more or less.

6029. As far as you know, they are not inspected by the Rural Authority into whose area they go?—No, they would not be.

6030. Miss McNEILL.—Is there much artificial feeding of infants in the city?—Not for the first two months, or probably I should say a month. Nearly all the infants are fed on the breast at first, and when the mothers find it necessary to go to work they use artificial feeding.

6031. I suppose that the mothers who have to go out to work are the poorest section of the working classes?—Very often a mother has to go to work because her husband is out of work.

6032. And they are not in a position to buy the best substitutes for natural feeding?—No.

6033. What is used as a substitute for the natural feeding of a child?—A number of them use condensed milk, but that is only the smaller portion, but the larger number feed them on bread and milk. We find in many cases they give them bread from the early stages, and other things that are wrong, and tea also.

6034. Has the Municipality ever considered the establishment of Infants' Milk Depots apart from what is being done by philanthropic effect, such as is done by the municipalities on the other side?—That was never considered by the Corporation.

6035. They did not think that there was any need in the interest of the citizens to supply, by municipal effort, any shortage in the feeding of infants?—No. With regard to the poorer infants, they thought it better to contribute in the way they have done through their own milk fund.

6036. That is not done by the Municipality as a Municipality, but by individual members—public funds are not used?—No. It is a voluntary fund.

6037. That is rather a casual, independent effort to deal with the problem?—Yes.

6038. Does that fund enable you to deal with any large number of infants?—We deal with a fairly large number.

6039. Could you say how many infants you assist in the course of the year?—Probably over four hundred.

6040. You must have spent more than £70 or £80?—We might have to help one for only a few weeks. As soon as the father gets work, we would stop the fund. We give the milk to take over a difficulty.

6041. The CHAIRMAN.—What would be your personal view with regard to the application of municipal funds for the purpose indicated? Supposing the Belfast Corporation came to the conclusion that the death-rate amongst infants was higher than it need be, owing to the improper feeding of infants, would you consider it a judicious and proper administration of public funds to devote portion of the rates to supply people with milk in these indigent circumstances?—I would, but I could not bind anyone. My view is that it would be well-spent money.

Thank you very much, Dr. Bullie, for the important evidence you have laid before us.

Mr. JAMES McBRIDE examined

6042. The CHAIRMAN.—You are a Dairy Inspector under the Public Health Committee of Belfast Corporation?—Yes.

6043. And your duty takes you round the townships of Belfast?—Yes, inside and outside.

6044. You do make inspection outside the city?—Yes, once a year.

6045. I am talking, in the first instance, of 30 or ordinary duties. They are, of course, within the city area?—Yes.

6046. Mr. WILSON.—Any inspection you make outside the city are entirely illegal?—They are.

6047. The CHAIRMAN.—Even in Belfast you sometimes do illegal things in the public interest. With

regard to those who are immediately under your control, do you find that the owners of the dairy farms are generally anxious to conform to the conditions you impose, and send out the changes you suggest with regard to their stock, and to the manner in which their premises are kept?—They do now.

6648. How many years are you in your present position?—Five years.

6649. And you think an improvement has taken place as regards the feeding between the administrative authority and the cow-keepers during that time?—No doubt of it. We had one hundred and sixty notices and seventy prosecutions the first year I was appointed.

6650. For non-observance of the conditions imposed in the Domes and Cowsheds Order?—Yes.

6651. Has that number increased or diminished?—Diminished every year since.

6652. Steadily diminished?—Yes.

6653. What are the last figures that you have?—Twenty prosecutions.

6654. And how many notices?—About fifty or sixty verbal notices.

6655. That shows a very rapid diminution?—Yes, within five years.

6656. So that the owners of these dairy yards have come to recognise that it is to their own advantage, as well as in the public interest, to conform to the regulations laid down by the Public Health Authority?—Quite so, sir.

6657. With regard to the examination of cows, do you find many suspicious cases—many animals that you suspect to be tuberculous?—If I find an animal with a bad-smelling swollen quarter I report the matter to the Veterinarian.

6658. That is in the milk?—Yes.

6659. The Veterinarian examines the cow?—Yes. He keeps her under observation in a separate place by himself.

6660. Is her milk put into the bucket?—No, certainly not.

6661. Not sold at all?—No.

6662. For what purpose would she be kept under observation?—I cannot answer that; the Veterinarian can.

6663. Once you have discharged your duty in reporting her as suspicious she passes into the jurisdiction of the Veterinarian?—Yes.

6664. Do you know whether there are many animals condemned to be slaughtered by order of the Veterinarian?—I cannot say that.

6665. Who pays the compensation to be paid to the owner of the animals that are slaughtered?—The Veterinarian.

6666. Have you had many prosecutions of dairy owners for non-observance of the conditions laid down in the Order?—I had a great many in the first year or so.

6667. For want of cleanliness?—Milking with dirty hands, for dirty byres, and calves in byres, and horses tied up in byres.

6668. These cases have diminished considerably?—Certainly.

6669. Do you find still occasionally that there is some carelessness in regard to the habits of the persons who are engaged in the milking of the cows?—Yes.

6670. So that it needs constant supervision to keep them up to the standard?—Yes, I make surprise visits in the morning.

6671. So that they can never tell when you might not turn in?—Yes.

6672. Are the cow-keepers scattered over the city or are they within a restricted area?—They are scattered over the city.

6673. Do you find the dairy business carried on in the vicinity of manure factories?—No.

6674. Have you any difficulty in procuring the prompt removal of the manure from the cow byres and yards?—About every four days the cow-keepers are supposed to remove it.

6675. Do they keep the surface of the yards cleanly and are the cows well bedded?—They are well groomed, but it is difficult to get bedding. Straw is up to 3½ a cwt.

6676. Are these cows well fed?—Yes, in town.

6677. Do they give oats to the cattle?—They get bruised corn and yellow meal and oil cake.

6678. Do they use grain as a feed for cows?—Yes.

6679. Do you approve of them as a food?—I would rather see them not feeding cows on grain.

6680. You think other foods might be better?—Yes.

6681. Have you ever been compelled to order the reconstruction of a byre?—Yes.

6682. And have the owners been willing to undertake the capital expense necessary to carry out the improvement you directed?—Some of them were, but others went out of the trade rather than comply with the recommendations.

6683. What number of cow-keepers would you say have gone out of the trade in consequence of the conditions you felt bound to impose?—Forty in the past five years.

6684. That would be between two and three per cent. of the entire number?—Yes.

6685. Would these be large or small cow-keepers?—Small.

6686. So that in reality it would not have a very appreciable effect on the milk supply?—No.

6687. In all, it might not amount to more than the keeping of twenty or thirty cows?—I should say that many, at any rate.

6688. You do not know what becomes of the animal that is suspected of being tuberculous, and that might not be positively so. Is it ever represented to the owner of the cow that it would be a good thing if he would get rid of that beast?—I do not know. I cannot answer that.

6689. It is no part of your business?—No.

6690. Because that custom does prevail in other parts of the country. Is provision made in any dairy yards for the washing of the hands of the attendants?—There is a wash-basin in the cow-shed, or in connection with it.

6691. As to the lighting, how is it done?—Some by electric light, some by gas, and some by oil.

6692. Do you find any difficulty in convincing cow-keepers that it is desirable to give the animals reasonable air space and ventilation?—I did at first, but not now.

6693. You found at first that there was a prejudice in existence?—Yes.

6694. Do you make any inspection of the cows when they are in pasture outside the municipal area?—Yes, I follow them out to grass.

6695. Do you make inspections for the purpose of ascertaining whether or not the animals are properly cleaned, or whether there are facilities for washing the hands of the milkers when the city cows are on grass?—Yes, as a rule they have a bucket of water.

6696. That is procured, as a rule, from the nearest gripe?—They have a water supply laid on, or, as a rule, there is a pump or a running stream.

6697. Is it not part of your business to inspect the milkshops?—No, it does not lie in my way.

6698. You have nothing to do except inspect the cowsheds and yards and the appliances connected therewith?—Yes.

6699. With regard to the milk at the railway stations, have you made inspections?—Sometimes. I have found the milk dirty, with hay and straw on it. In a great many cases they never strain the milk.

6700. The condition of the vessels would not be very appealing to look at?—No.

6701. Do you consider that you have no power in this case to take any action?—I do not think we have.

6702. This milk is consigned to a purveyor in town, and it is his property when it reaches its destination?—Yes, we cannot touch the party who consigns it at all.

6703. You prosecute the man who is not in any way responsible for the condition in which the milk is received?—Yes.

6704. And the only way in which you could enforce a prosecution against the man sending the milk would be to have the milk condemned as human food?—Yes.

6705. And that would be drastic and expensive?—Yes.

6706. And you might not be able to convince the magistrates that it should be condemned?—Yes.

6707. Are you in favour of licensing?—Certainly I am.

6708. Would you issue licences indiscriminately to all who would apply?—Not if the penalties were not right.

6709. You would consider the character of the applicant, and if the man had been persistently evading the regulations, or prosecuted for breaches of the law, would you continue the licence to him?—No.

6710. You would make it renewable annually, as in the case of the Liquor Licence?—Yes.

6711. Lady EVELING.—Could not the Inspector of Food and Drugs condemn dirty milk?—He might seize it, but I do not think he could condemn it.

6712. It seems a dreadful thing that dirty milk should be disseminated through the city. Could not the milk be seized when it arrives at the premises of the person to whom it has been sent?—I suspect it could.

6713. Is that ever done?—No.

6714. Mr. WILSON.—What about your inspection outside the city?—I have photographs here of byres outside the city area.

6715. Mr. O'BRIEN.—By what authority do you inspect the dairy-keepers outside the city of Belfast?—We have no authority. I assume the authority. I am just a trespasser.

6716. Are you not running the danger of an action being brought against you?—No, I don't think so. They are all very nice to me.

6717. Mr. WILSON.—Is that photo typical of what you see further west in the outside districts?—Yes, when I went out first.

6718. The CHAIRMAN.—You have got notes on the backs of the photographs?—Yes, describing the condition of the byres.

6719. Mr. WILSON.—On the back of the photograph I have the words, "No light or ventilation; thatched roof, walls rough, and have never been lime-washed; floor of stones and earth; manure heap close to byre; cows and cow sheds in a filthy condition." That was no unusual thing at the beginning of your inspection?—No, and it even exists still in the case of some of the byres.

6720. Miss McNEILL.—Is that outside the city area?—Yes, outside.

6721. Mr. WILSON.—Are you satisfied with the powers you have under the present Acts of Parliament for controlling the trade?—There might be one or two slight alterations.

6722. Mr. O'BRIEN.—Do you think it would be advisable to have a register of the people who supply the milk?—The shopkeepers keep a register of the names and addresses of the people they get milk from, and they will give it to you.

6723. The shopkeepers can tell you the milk came from a certain farm belonging to a certain man?—Yes.

6724. Can he also tell you how many men that man employs in his dairy and looking after his cows?—No.

6725. Is not that just as important really as to know what farm the milk comes from?—I don't say it would be.

6726. The contamination of the milk may come from some of the persons who are handling the milk, and one of these persons might be a typhoid carrier?—Yes.

6727. Do you not think that it would be well if the Municipal body were to keep a register of all the people employed in the milk trade?—Yes, it would be very good.

6728. The CHAIRMAN.—I understand, Mr. McBride, that you have presented certain reports to your Public Health Committee, in which you deal with the conditions which you found existing in the outside areas. Could you give us a short account of the conditions you found existing in these outside areas?—I will give you a few.—On the 11th inst. I attempted to inspect sixteen dairy farms outside the County Borough of Belfast, in County Antrim, from which milk is conveyed to the city; in six instances I was refused permission. In the townlands which I visited I found no improvement since my former visit in March, 1911. The buildings are of stone and lime, and quite a number are thatched, the walls inside are rough, broken, dirty, and covered with dust, while the ceilings are festooned with cobwebs; the light and ventilation are defective; the floors are paved with stones and earth, which is unsuitable, as it is quite pervious; there is no provision made for drainage. In many instances the manure heap is

only a few feet from the byre door. Judging from the condition of these cow sheds, in my opinion the milking could not be carried on in a cleanly manner. I may add that in two cases the owners informed me the byres had not been cleaned for three days; I found in two cases pigs under the same roof with the milk cows. Two of the above dairies have never been registered nor inspected. Another case, November, 1910. That in the occupation of Mr. —, Co. Down. This dairy is registered and officially inspected. No windows, no provision for ventilation; no drainage; floor paved with stones and earth; full of holes and accumulation of liquid matter; walls rough and pervious; have never been lime-washed; manure heap against gable of byre. There are two byres, both similar. I found in No. 1, 2 brood cows; in No. 2, 3 cows, 1 bull, and 3 pigs, which were in a dirty condition, with no bedding of any description about them. It would be impossible to describe the condition of this place, as both outside and inside are in a lamentable condition. Thirty gallons of milk are sent to Mr. —, Belfast, daily. Mr. — has been delivering milk in Belfast for the past six years.

That in the occupation of Mr. —, Co. Down. This dairy is neither registered nor officially inspected, No. 1 byre—no windows nor provision for ventilation; floor paved with cobble stones and earth; walls rough and pervious, have never been lime-washed; ceiling festooned with cobwebs; roof thatched; No. 2 byre—same as No. 1, wooden structure; 1 cow and 3 calves in a filthy condition. At time of inspection there were six gallons of milk in byre in a canister can. Eight gallons of milk are sent daily to Mr. —, Belfast.—November, 1910.

That in the occupation of Mr. —, Co. Armagh. This dairy is neither registered nor officially inspected, although the owner has been sending milk into Belfast for a number of years; no windows; ventilation in walls; floor paved with stones and earth; liquid discharges into manure heap at gable; byre cleaned through hole in wall; mud walls and very dirty; thatched roof with accumulation of dust and cobwebs; calf in cowshed. Fifteen gallons of milk conveyed daily to Belfast.

That in the occupation of Mr. —, Co. Antrim. This dairy is registered and officially inspected; light and ventilation bad; floor paved with stones and earth; walls very rough and dirty; cows in very dirty condition. Fifty gallons of milk delivered daily.

That in the occupation of Mr. —, Co. Down. This dairy is registered and officially inspected; no provision made for light and ventilation; floor paved with stones and earth; walls rough and very dirty; liquid discharges into manure heap close to byre; hay cleaned through hole in wall. No. 2 cowshed is similar condition. The owner informed me that he kept a cow and eight young pigs in this byre with four cows; the whole surroundings in a dirty condition. Twenty gallons of milk conveyed daily to Belfast.

6729. Lady EVELING.—Are these registered dairies?—Some are, and some are not.

6730. The CHAIRMAN.—But apparently the registration means nothing?—I would not count much on that. One man told me that he thought his dairy was registered.

6731. Lady EVELING.—He did not appear to be certain?—No.

6732. Do you know dairies near the town that have not been registered or inspected?—Yes.

6733. You have no right to take any steps when the dairy is not registered?—No.

6734. The CHAIRMAN.—Were the owners of these dairies that you have described in any degree adverse to your inspection?—Some were. In one district I made one hundred and eight visits, and thirty-five cow-keepers refused to allow me to inspect their premises. In another district I visited thirty dairies, and fifteen refused to allow me to make an inspection.

6735. Do you think the refusals are increasing?—Yes. The cow-keepers have been warned not to let me into the premises.

The Commission adjourned at 5 p.m. till the following morning.

EIGHTEENTH DAY.—WEDNESDAY, 14TH FEBRUARY, 1912

The Commissioners resumed their sittings at the City Hall, Belfast, at 10.30 a.m.

Present.—P. J. O'NEILL, Esq. (Chairman); LADY EVERARD; MISS MARGARET McNEILL; Sir STEWART WOODHOUSE, M.D.; ALLEG. G. WILSON, Esq.; DENYD O'BRIEN, Esq.; and Professor A. E. METTAM, B.Sc., M.A.C.V.S.

S. W. STRANGE, Esq. Secretary.

Professor W. ST. C. STEWART, examined.

6736. The CHAIRMAN.—You are Professor of Pathology in the Queen's University, Belfast?—Yes.

6737. And you have carried out some analyses of milk for the Municipal Authority of Belfast?—Yes, quite a number.

6738. For how many years have you been conducting these examinations?—This is the end of the fifth year now.

6739. Speaking generally, what has been the result; have they proved that the milk is moderately pure and free from disease germs?—I think so. That is the general impression that I have got from an examination of five years. If you would permit me, I would give you just now the figures for these five years very briefly.

6740. I should be obliged if you would do so?—I found that from 1907 to 1910 inclusive, that is four years, that I have examined 349 samples of milk for the Public Health Authority at Belfast. Of these, 273, that is a little more than one-half, were samples that came from without the city boundaries. The remaining 286 samples came from within the city boundaries, so far as I know. In these 519 samples there were seven bacilli, by which I mean coccal bacilli, present in 23 cases with $\frac{1}{10}$ per c.c. of the samples of milk examined for that purpose. These 23 cases contained coccal bacilli in that quantity. Of these 23 cases, 21 came from milk that was sent into the city from without. That leaves us 2 cases only in which this contaminated milk was collected in the city so far as I know. At the same time, of these 519 cases I examined 190 by centrifuging the milk and by injecting the deposit into guinea-pigs, with a view to determining or otherwise the presence of tubercle bacilli. I had only one positive result in the whole of these, which, of course, is a surprising thing.

6741. It is a very gratifying result?—Very gratifying, indeed. This, then, is the general impression that I got from these four years. The milk samples for 1911 I have not included in this list, because the figures are at present in the hands of Mr. Baile, the Medical Superintendent Officer of Health, and I have not yet analysed them sufficiently to put them before you.

6742. With regard to adulteration, how many cases of adulteration have you discovered?—I do not examine the milk for adulteration of that type. That, I believe, is done by Mr. Tutin, who is specially employed by the Municipality for that work.

6743. So you have no responsibility for that?—None.

6744. Have you had experience elsewhere of similar work, and, if so, how does your experience in Belfast compare with other places?—I have made a certain amount of these milk examinations while in Egypt, but it was not systematically done, and it was done more in my private than in my official capacity, and nothing comparable to what I do in Belfast.

6745. And, of course, the conditions would be quite different from here?—Yes.

6746. The examinations you conducted would enable you to determine whether or not there were bovine bacilli in the milk that you tested?—Certainly, sir.

6747. And only in one individual case did you discover this unpleasant condition?—Yes, in one only.

6748. Which would seem to indicate that the dairy herds of Belfast are wonderfully immune from this particular disease?—They seem to be unusually so.

6749. Are you in favour of the application of the Widal test to those engaged in dealing with milk in order to determine whether or not they are typhoid carriers?—I expected that question, of course, and I have been thinking about it long before I thought the

Milk Commission was coming to Belfast. I am not particularly in favour of it. If you would like any reasons I would be delighted to give them.

6750. I would be very glad. In the first instance do you believe that a danger arises from the possibility of people engaged in the milk trade being typhoid carriers?—Of that there is not the slightest doubt. I am convinced that there is a positive danger.

6751. Will you give us your reasons why you are not in favour of the Widal test?—To begin with, there is the practical difficulty, which could be overcome, that it would require an enormous amount of labour to examine every person handling milk. In the second place, even if the persons gave a positive result, that is no guarantee that they are excreting typhoid bacilli. In the next place, even if these persons do not give a reaction it is no guarantee that they are not typhoid carriers, and, lastly, if you get a positive result in these cases, it would be necessary to examine the urine and the faeces of these people, in my opinion, on more than one occasion in order to determine definitely whether they were dangerous or not. I think that all this means too much work, and is too indefinite to be at present undertaken.

6752. You do not believe that an expenditure of public money, and the inconvenience to the people engaged in the trade, would be justified by the result?—I do not think so. Would you allow me to add an appendix to what I have said? I think, of course, if there was illness in a particular dairy, then it might be one's duty to examine with the Widal test; but, as I understand, you mean all dairies, whether there was fever or suspicious cases in them or not.

6753. Precisely. I was posing the question generally as to whether or not you thought it a wise expenditure of public money to apply the test to all persons handling the milk?—Yes, I understand you, and I do not believe it would be wise.

6754. And it would be only where typhoid fever occurred and the milk supply was the suspected cause of the trouble that you would be in favour of the test being applied?—Yes.

6755. With regard to diptheria, there has been an unfortunate outbreak in this city within recent times, and the belief is prevalent that the milk supply was the source of the infection. Can nothing be done by scientific means to obviate this danger?—The only thing that could be done, so far as I can understand, is to determine whether there are bacilli carriers in the personnel of the suspected dairy.

6756. That could be done by taking a swab from the throat of the suspected person?—Yes.

6757. Is that resisted by the people who might be subjected to it?—I do not know from personal experience, but I understand that they do resist it.

6758. With regard to pasteurisation, are you in favour of the milk being subjected to this process?—No, sir, I am not.

6759. Do you believe that the food properties of the milk are impaired by subjecting it to that process?—I think they are undoubtedly impaired. Why I do not know; but I have spoken very frequently with men who had a large experience in the treatment of children, and I remember no case in which the men thought that the milk is equally good with raw milk.

6760. And you would aim at securing purity and cleanliness by other means than by pasteurisation?—I should very much prefer that.

6761. And, I take it, you are still less in favour of sterilisation?—Yes, still less so.

6762. Flax, of course, are a frequent source of contamination to the milk when the milk is exposed in the warm weather?—I believe that is so.

6763. Would you be in favour of a more general bacteriological examination of milk than is usually carried out?—Yes, I think it is advisable that it should be examined bacteriologically.

6764. Of course, you have had no experience whatever of tuberculosis in animals—you do not deal with that part of the subject?—No.

6765. Probably we will get evidence from the Veterinary Inspector on that particular subject?—Yes.

6766. Is there any other point to which you desire to draw the attention of the Commission, Professor Symmers?—There is one point, largely controversial; that is the question whether animals reacting to tuberculin, and which are used as milk animals, should continue to be so used or not. That is to say, animals not having any demonstrable visible lesions. I would like to point out, sir, that a tuberculin reaction is one thing, although extremely useful, is apt to lead one astray. My reasons for saying that are these—that although a positive tuberculin reaction indicates that the patient, man or animal, has, at one time, suffered an infection of tubercle, it certainly does not indicate that at the same time you get the reaction the disease is present; and particularly in a chronic form of disease like tuberculosis this reaction is often given when the disease is not actively progressing, but when it has indeed passed into what you might call the latent condition. And during that time the animal could not be a source of danger either to other animals or human beings through the milk. I may call your attention, sir, to the fact that in human beings under the age of twelve years you will get almost invariably a positive tuberculin reaction, if that reaction is properly attempted, and yet we do not all die of tuberculosis. That fact I can substantiate from many post mortem examinations, in which it is perfectly astounding how often healed tuberculous lesions are found in the lungs. If you take into account the enormous amount of tuberculosis in animals and in men, I do not think that the giving of a positive reaction in a valuable cow is sufficient reason for destroying that cow, although I admit that should the disease become active in that cow you are running great danger. But I also venture to give it as my opinion, that although tubercle bacilli have been found to pass into the milk from tuberculous animals whose udders were said to be sound, still, if the udders are unaffected, the danger of the milk containing tubercle would appear to be at a minimum, and the danger from such cows is very slight, if there is any danger at all.

6767. Will an animal in which the tuberculous lesions have become dormant give the same reaction as when the disease is active?—I think so, undoubtedly, in human beings it is certainly a fact.

6768. That rather discounts the advantage to be derived from the application of this test?—I think it certainly does.

6769. You would not be in favour of the general application of the tuberculin test to all milk-yielding animals, whether exhibiting suspicious symptoms or not?—I would like to answer that question in this way—If they were my animals, and I was selling milk to the public, I would subject them to the test, so as to avoid the risk, however great or small it might be.

6770. But you do not think that the local authorities or the city authorities should impose such a condition?—Not at present. I do not think the time is ripe for any such thing.

6771. Is there any other point, Professor Symmers, to which you would wish to draw the attention of the Commission?—I would like to say, sir, that my chief interest in this work that you are doing as I think I want to back up our Medical Officer of Health, Dr. Balke, to the utmost of my ability, in gaining, if possible, the power to inspect the districts outside the boundaries of Belfast, and also of having some greater powers over the milk that is brought into the city. That, after all, if you will forgive me for saying so, was my chief desire for appearing before you at all. Those other bacteriological points you can easily get from other sources; books, and so on.

6772. We should be very glad to get your opinion on them?—I thank you. I really think if we got more power over the places in the country it would be a great advantage to us in Belfast.

6773. You do recognise that there is a certain danger arising out of the milk supply being sent into the city of Belfast as the Public Health Committee has no power of superintending that as they do in certain English cities?—That is my own opinion, and may I call your attention to the fact that of the thirty-two cases containing excreted bacilli, twenty-three came from outside our own supervision.

6774. Yes, I noticed that, and it would seem to indicate that the gravest source of danger to the public health of Belfast arises from the milk sent in from outside the city?—I believe that is so.

6775. Your figures prove that pretty conclusively?—I think they do.

6776. Lady Eversham.—Have you any experience of the private Acts of Parliament that are in force in Manchester and Liverpool?—None whatever.

6777. Giving the authorities of these cities power to examine into the outside sources from which the milk supply is derived?—I know they have that power, but I know nothing definite about it.

6778. You think this power would be of advantage to Belfast?—That is what I want.

6779. It appears that under the Tuberculosis Prevention Act you can have the power to go and examine outside sources of supply. Professor McWesney brought that before us in the course of his evidence in Dublin?—I am not sure that that is well understood.

6780. Is it not a fact that cows may excrete bacilli one day and not another—that you may find bacilli one day and not for several days afterwards?—It is highly probable.

6781. Mr. Wmason.—The one sample you examined, which gave a positive reaction in the guinea-pig, was that a sample selected from the ordinary market milk?—No, it was a sample specially got by an Inspector who suspected the milk supply.

6782. It was a suspicious case that was tested to confirm the diagnosis of the Veterinary Inspector?—That is so.

6783. And consequently in the samples of normal market milk in this city you had no positive reaction?—No, in 189 cases.

6784. Would you think 189 samples of milk a sufficient number to reason from?—No; I should like a great deal more than that certainly, because the universal experience of other towns is that you cannot examine a large quantity of samples of milk and get negative results. I am surprised that I have got such a result in Belfast, and therefore I am not satisfied.

6785. And you would recommend the Public Health Authorities of this and other cities to carry out examinations for tubercle on a much larger scale?—Yes.

6786. To satisfy the public mind as to whether Belfast figures were true or not?—I should like to see these experiments carried out from year to year.

6787. As a routine system to protect the public health?—Yes.

6788. Do you know what the figures are in other towns that have examined the milk as you have?—I have had scores of these figures dealing with various parts of the world. In New York 15 per cent. of the milk is said to be tubercular.

6789. Are the figures for Belfast abnormally low?—Certainly they are. The only case that comes any near that was the first examination in Liverpool, when tubercle was found in one case out of one hundred and three samples.

6790. When you consider the whole question of protecting health, it appears to me that there are two distinct systems of protection which should be in operation at the same time—the inspection of all milk cows in the producer's area to see that all the cattle are periodically inspected for chronic tuberculosis, and on the other side bacteriological examination of the milk on the part of the consumer's authority. Neither of these separately would be sufficient?—No, I do not think it would. I do not think either of them separately would be a sufficient guarantee.

6791. If the consumer's authority had power to follow conscientiously milk to its source under the rural authority, you think that there would be a reasonable prospect of genuine protection of the public health?—I think so.

6105. With regard to the phrase I used, "contaminated milk," I do not mean that to tuberculosis, and I think in view of your figure regarding the presence of faecal bacilli—milk containing colonic bacilli in these twenty-three samples from the country out of thirty-two—that the only authorities should consider it contaminated for the purposes of inspection outside the city boundaries?—Yes.

6106. And as a standard of contamination you would recommend the figures you have given, viz., $\frac{1}{100}$ per c.c.?—I think that is fair enough, though I am perfectly willing to change that at any time. I have been trying to get a standard, and I think that is a fair standard.

6107. You would recommend that to be adopted as a legal standard?—Not yet. Not until thousands of these examinations have been made. You will notice that I have only got thirty-two cases out of over five hundred.

6108. And every one of these cases is a case of gross contamination by manure?—I think so.

6109. That intestinal contamination may, of course, involve the risk of tubercle bacilli reaching the milk where there was a tuberculous lesion somewhere in the intestines?—Yes.

6110. I think I am right in saying that Belfast is the only Irish city that has adopted the scientific method you have followed in connection with its milk supply?—I never get milk from any other place except from Belfast.

6111. We have had no other evidence that milk was subjected to your method of analysis?—I do not think it is done up in this part of Ireland at any rate, otherwise I should have heard of it. I mean by that, that I do not think that there is anyone else but myself and my assistant who do this work in the North.

6112. I would like to have your opinion about the destruction of the valuable properties of the milk by any heating process. We had evidence from Professor McWeeney and Professor Thompson regarding the destruction of the lipase—have you any knowledge of that particular subject?—I know that, that the whole of that question is problematical. It is, no doubt, a fact that there is something destroyed in the milk which is necessary for infants, but what it is I do not think anyone knows. Professor McWeeney says it is probably the curdiness, and I think he is quite right in that supposition. We know that curdiness was destroyed by low temperature, but I do not think that anyone can give you an exact description of what changes the milk, but, as you know, the milk is changed, and the change is due to the heat employed.

6113. Is there any recent knowledge as to the presence of opsonins in milk?—None whatever. Not to my knowledge. I never heard of opsonins being in milk. Am I right, Professor Mettman?

Prof. Mettman.—I do not think they would be much good if there were there.

6114. Mr. Winson.—With regard to the examination of cows in the country, of course, everyone knows that there is a constant interchange going on between the private owners and the public dairy men, and cows are being bought and sold every day. Is there any reason why privately owned cows should be exempt from examination for tuberculosis?—None whatever.

6115. Would you give the local veterinary surgeon power to examine anyone's cow? As one of the witnesses who is going to be examined states in his summary of evidence, "A man might be killing his own family by a tuberculous udder."—Yes, I would like to see it done, but I certainly would not impose that upon the private person. If he wants to kill his own family let him do it.

6116. Prof. Mettman.—Can you tell us why, out of five hundred samples, only one hundred and sixty were examined for tubercle?—Because I had great difficulty in getting guinea-pigs to begin with, and I try to examine about one-fourth of the milk that is sent me by the town. I do not undertake to examine at present every case that is sent to me; although I hope that when the animal house is finished at Queen's University I will be in a position to examine every case.

6117. As regards the colonic bacilli, you think that the contamination was from an animal source and not from a human?—As you know, there is no way of telling these two sources, and seeing that the danger of animal contamination is much greater than the human, I take it, that they were animal contamination.

6118. There was nothing else in the milk to suggest that it was human contamination?—No.

6119. As regards tuberculin, do you think you would get a reaction if the lesions were sterile?—I do.

6120. I do not think it is the case in cattle. I think if you get a reaction as lesions they are certainly not sterile. If you get a reaction even when these lesions are in a latent condition, sooner or later these lesions may light up, and a case of closed tuberculosis becomes an open one?—That is a possibility.

6121. And so long as that exists, is it not well to keep a sharp look out on every case of tuberculosis in animals?—Yes.

6122. As soon as an animal becomes a case of open tuberculosis it is a source of danger to the community at large?—I think so.

6123. Do you think tubercle bacilli are infective to man?—Yes.

6124. Can you give us your opinion as to what you consider the chief part of entry of the tubercle virus into man?—The general belief is that the ingestion method is the chief one. I venture to think that the ingestion method is of very much more importance than has heretofore been believed, although I do not venture to say that it is the chief method. However, I express an opinion that I know is different from that of many other men quite competent to answer your question.

6125. I may say that I quite agree with you; it is my own experience too. Is there any difference in the lesion as said to be in man and animals?—No.

6126. They are practically one and the same?—Yes.

6127. And so pathologist would differentiate between the two?—No.

6128. Do you think the bovine bacilli are infective to man?—I think the human form is more virulent to human beings than the bovine.

6129. But still the bovine bacilli are infective to man?—I think there is no doubt about that.

6130. Now, as to typhoid carriers, the Chairman has already asked your opinion as to the typhoid carrier, and I take it that you rather think it would be difficult to examine all persons handling milk, as far as typhoid infection is concerned?—It would be an enormous matter.

6131. But suppose you had reason to suspect that the milk produced at a certain dairy contained the typhoid organism, do you think you should have power to examine the persons handling the milk?—Yes. I tried to make that clear to the Chairman.

6132. And not only in the case of typhoid, but also in the case of diphtheria or any other infectious disease?—Yes.

6133. If the medical officer has reason to believe that infection is proceeding from a certain dairy, but has not got actual proof, do you think he should have power to prevent the sale of the milk from that dairy?—Yes.

6134. For a reasonable length of time?—Yes. I admit it is a great hardship, but I think it is his duty to do so if he can.

6135. As regards the milk that is coming from the outside districts into the city, do you know if samples are taken at the stations or at any other places where the milk is coming in?—I cannot tell you.

6136. You do not know whether there are inspectors whose duty it is to take samples at the stations?—I do not know.

6137. Do you know if the yards and the cattle of the producers are examined outside the city?—I do not think there is any power for the Belfast authorities to do that outside the city. What I do know is that when my report is laid the inspector goes to that owner producer and gives a second sample for examination, and I know that that gives an indication to the producer that there is something wrong, and I find that the second samples are very seldom as bad as the first.

6138. Have you any experience of so-called milk food?—None at all.

6139. When you were in Cairo did you make any examination of goats' milk?—No, not in Cairo. I have seen examinations of goats' milk made in Malta, but I have never made them myself.

6140. What is your opinion regarding goats' milk?—I think it is an excellent milk.

6141. In Cairo you had an epidemic of Malta fever that was probably from goats' milk?—Yes.

6603. That would be one of the dangers we should run in this country?—Yes.

6604. You know the case of the importation of Malta goats to the U. S. A., where the crew all became afflicted with Malta fever?—Yes, a very famous case.

6605. Mr. O'Brian.—Do you find much tubercle in pigs?—I do not examine pigs. I do not know.

6606. Can a cow, in your opinion, be infective to human beings?—Yes.

6607. Is that a frequent thing?—I do not think it is. That is one of the great controversial points on which I can give you no new information at all.

6608. Do you think that the tubercle bacilli is conveyed much in butter?—No, I do not think so.

6609. Is that because the proportion of milk used in butter is so small, or that there is something in the process of making butter that in any way affects the tubercle?—I cannot tell you the reason, because I have not the slightest idea how many cases of tuberculosis come from butter; and I do not think anyone could tell you. I know that tubercle has been found in butter, but I cannot give you a detailed answer to your question at all. I regret it, but I cannot.

6610. Sir STEPHEN WOODHOUSE.—You mentioned some cases in which there was a considerable proportion of milk examinations with tubercle bacilli?—Yes.

6611. Nearly all of them, in fact, higher than that shown in Belfast milk?—Yes.

6612. One city has as much as 15 per cent. of the specimens examined containing tubercle bacilli in them?—Yes.

6613. Therefore it may follow that the chances of infection are somewhat remote of tubercle being conveyed by the market milk to the human being, because otherwise in a city with such a large proportion of milk affected there would be a very noticeable prevalence of tuberculosis?—There is a noticeable prevalence of tuberculosis in every city in the world. It is believed by many pathologists that every person up to the age of twelve years has undergone tuberculous infection. That scientific fact has many points to recommend it.

6614. In a city in which a considerable portion of milk has tubercle bacilli discoverable in it, will not that city develop noticeably a larger proportion of tuberculosis than a city in which the milk supply is free from tubercle bacilli?—Milk is not the only source of tuberculosis. Probably the greatest source is from human being to human being. I imagine on the whole, however, your question should be answered in the affirmative.

6615. And yet, as a matter of fact, it does not seem that many more deaths occur from tuberculosis in such cities which you mentioned, where they have a very considerable proportion of milk with tubercle in it, than in cities such as Belfast?—No, I believe that is true.

6616. Well, therefore, the chance of tubercle being conveyed to human beings through milk having tubercle, though there is a chance, still, it is a small chance?—I think that is the general view now-a-days.

6617. Do you consider that pasteurisation deprives milk of some of its nutritive qualities?—I think it renders it unfit food for sucklings.

6618. Sterilisation still more so?—Yes, or equally so, at any rate.

6619. Have you any knowledge of the infection of milk by flies or dust?—No personal knowledge.

6620. But you believe that it is quite possible for health tubercle or colon bacilli to be conveyed by flies?—That is undoubtedly true. It has been proved beyond all doubt that these things do adhere to the feet of flies, and that these flies can convey it to fluids.

6621. Do you believe that the dust of the street may convey typhoid bacilli?—No, I do not believe that. I do not believe the dust of the street can convey typhoid bacilli. Typhoid bacilli is much too susceptible to drying to live long in dust.

6622. Do you believe that typhoid bacilli could be conveyed by strong winds?—No, I do not believe that at all likely.

6623. Would the Widal test be objected to by the persons to whom it is suggested that it should be applied?—I have never known anyone to object to it for any reason, as a matter of fact.

6624. Do you believe that carriers of typhoid are common?—Yes, very common.

6625. What proportion would you think of people are

carriers?—I have been trying to satisfy myself on that point, and I believe somewhere from four to six per cent. of people who had typhoid fever must be typical carriers.

6626. And that may endure for years?—Yes. It has been claimed particularly by one of my own friends that he has found these things after six years. We had in Belfast a case where after seven years we got these bacilli on at least a dozen occasions from the same person, and there was no reason to believe that there was an inter-current attack of typhoid during these seven years.

6627. So a noticeable proportion of the population may be a source of danger?—Yes, sir.

6628. Miss McNamee.—With regard to your belief that the Widal test would be undesirable, is it because you think it would be impracticable or an unnecessary amount of expense?—Yes, it is impracticable on account of the enormous labour and expense.

6629. It would be difficult to have all the people systematically tested?—I think so.

6630. Do you think that it is possible that you might get a negative reaction in one case—I mean that such a reaction might be got, and that it would not be satisfactory evidence that the second test would prove negative?—Quite so. I have often done that.

6631. Have you used living cultures?—Yes.

6632. So that you do not regard a single negative result as anything like proof of the absence?—No, certainly not.

6633. You think the application of the test would be a very expensive matter?—Yes.

6634. Besides being impracticable?—Yes, at present.

6635. I think that there are probably about four hundred workers connected with dairy places in Belfast. What would be the expense of having these subjected to the Widal test?—You have to understand that it would have to be continuously done.

6636. I quite recognise that?—Suppose you did it every three months.

6637. Do you think that would be necessary?—Yes, if you are going to do it properly.

6638. It would be necessary in order to be a sufficient guarantee?—Yes. They might take typhoid fever in the meantime, and I don't think the dairymen would like you to be going in every three months to take a drop of blood from his employees.

6639. Can you estimate what the expense of the test would be in the case of four hundred workers?—I cannot.

6640. It would come to a pretty considerable sum?—I take it there would be something between 6,000 and 8,000 examinations every year, and I suppose you could get an examination done for 5s. That would give you 41,500.

6641. Do you think that that money expended otherwise, or even a lesser sum, in supervising the dairy yards would be a better expenditure of public money than having the Widal test applied?—I should say so. In my opinion it would be better to do so.

6642. That is just exactly what I wanted to know?—I think the money could be better spent.

6643. You think it could be better spent in other ways than in the application of the test?—Yes.

6644. In regard to pasteurising, I think you said that such milk was unfit for the feeding of sucklings?—I think that is true.

6645. Is that opinion formed on your own observation, or is it the opinion of others?—It is second hand information altogether.

6646. May I ask you whether it is the opinion of practising physicians?—Yes.

6647. In this country?—In this town.

6648. Do you know whether they had very extensive experience of children who were fed on properly pasteurised milk?—I think that the one that I have particularly in mind had a large experience of pasteurised milk, and he spoke to me very strongly against it.

6649. We have had evidence from a practising physician in Dublin in regard to the use of pasteurised milk. He has for a period of over two years made extensive and intimate observation of one hundred and twenty sickly babies—who were sickly when he first began treating them—who were fed on pasteurised milk. His opinion is wholly favourable to the use of such milk. He is of opinion that it does not develop scurvy or rickets. He also says that the death-rate among these one hundred and twenty sickly children was only five.

or fifty-one per thousand, as against one hundred and forty-five per thousand, the general death-rate of Dublin?—I am only expressing a second-hand opinion.

6876. I would like to know if you are aware what is being done in German infant hospitals and institutions for the care of sucklings?—No.

6877. Perhaps I might say that I had some experience there last year, and found that they had in the infant hospitals in Berlin continued the use of pasteurised milk, even though they had their own cows very carefully attended to—their observation did not in any way make them fear the use of pasteurised milk for infants. The same also applies to Dresden, where the authorities have continued for over eleven years the use of pasteurised milk. Do you think that that, together with the evidence of the Dublin witness, would make one consider very strongly the practical value of commonly expressed opinions on this subject?—I have never heard such definite facts in regard to this matter.

6878. I rather think that people do not give definite facts. I wanted to have your opinion, knowing your high reputation—whether the opinion you expressed was the result of your own experience. I do not want to suggest that anyone regards pasteurised milk as being as good as pure milk, but owing to the difficulties of procuring pure milk it is very valuable, and I think it is a pity that opinions should be expressed without definite facts?—Your statement is extremely interesting, and I thank you for it.

6879. **MR. SWEENEY WOODHOUSE.**—There is a good deal of summer diarrhoea amongst children in all towns. Do you attribute that in a large degree to milk?—I think that the new works tend in the direction of showing that that is so.

6880. Arising from fermentative changes?—Yes, and these being bacteriated in origin. That seems to be scientifically established within the last three years.

6881. The practical result of that is the importance of giving only fresh milk before the fermentative change or even the lactic acid changes occur?—Yes.

6882. **Lady LIVERMORE.**—Is it not a fact that sterilisation or pasteurisation makes the milk more liable to contamination?—Pasteurised milk probably, but it has not any greater likelihood for contamination.

6883. As the analysis of the milk in Belfast was so free from tuberculosis, can you give us the death-rate from tuberculosis in the city?—I am sorry I cannot.

6884. **MR. WILSON.**—I would like to ask if you would give us an outline of the method by which immunisation against disease is caused, is it by the bacterium itself?—Bacteria or their products, when injected into an animal-body, cause a certain reaction, which results in the formation of substances which are antagonistic to

the poisons injected, and the animals are said to be immunised against the poisons employed.

6885. If we attributed the accidents that were daily caused—the openly tuberculous animals that any veterinary surgeon could diagnose—would it not reduce the problem to the point at which the entrance of the tubercle bacilli through ordinary milk might be of an immunising, rather than of a destructive character?—I do not think any man would start to immunise an animal by using living, powerful germs.

6886. Not deliberately?—No, but if a person wishes to give the public milk containing living germs you are deliberately doing so.

6887. Your own figures have shown us that the average milk of Belfast does not contain tubercle germs on a large scale?—Quite so.

6888. Such samples as you have examined in Belfast presumably contain so few tubercle bacilli that they may be held to be immunising agents, rather than destructive ones?—That is an extraordinary view. That is a perfectly astounding statement, Mr. Wilson.

6889. What is the scientific answer to it—is not the entrance of the bacteria on a small scale the scientific explanation of immunisation?—Well, now you are getting into the region of controversy about which volumes have been written. May I ask if you would immunise a child against anthrax by injecting into the system the germs of anthrax. If you did so you would kill that child. You cannot go about these things in a haphazard way, by allowing people to drink tuberculous milk to immunise themselves.

6890. **Prof. MERRIAM.**—Some persons might stand a larger dose than others?—Yes. The whole thing is misleading. I never heard such a suggestion in my life—that you can immunise people against tubercle by putting small doses of poison into their bodies and that the drinking of tuberculous milk is good.

6891. **MR. WILSON.**—I am talking of the ordinary market milk, where your commission has failed to find the bacilli?—It has not failed. There are thousands of gallons that have not been examined. You have to take these into account, as well as the few trivial cases in which I have failed to find the tubercle.

6892. I merely wanted to bring out, if I could, the practical point that the diseased animal, in whose milk you find tubercle bacilli, is the chief risk in the dairy trade?—Yes.

6893. And whether, if it were possible by the double method of veterinary inspection in the country, plus bacteriological examination of the milk in the town, to eliminate these animals, the greatest part of the risk in the dairy trade would be abolished?—That, I think, is admitted.

6894. That is all I want to know?—I thought you wanted me to do further some extraordinary view.

MR. HENRY L. BETHMOLOS examined.

6895. **THE CHAIRMAN.**—You are an Inspector under the Food and Drugs Act under the Corporation of Belfast?—I am.

6896. And are you also a Sanitary Officer?—Yes, sir.

6897. In the drawings of your duty have you from time to time taken samples of milk that is exposed for sale in the city?—I have.

6898. We have been told that two-thirds of the milk supplied to Belfast comes in from districts outside the city?—Yes.

6899. Where are the samples taken of the milk coming into the city from the outside area?—Some samples are taken at the local railway stations—that is the milk that comes to Belfast by rail. Then we have about one-third of the supply that is brought in by milk carts. Samples of that milk are taken in various parts of the city.

6900. With regard to the samples taken at the stations, in what condition have you found that milk when taking the samples, apart altogether from the question of its adulteration?—Some milk appears to be dirty looking. Some of the milk seems clean, but most of it dirty. In that case I take samples for bacteriological examination, as well as for adulteration.

6901. Where you discover the milk is dirty you send samples to the Bacteriologist?—I do.

6902. To whom do you send your samples for examination in regard to adulteration?—To the City Analyst, Mr. Tolson.

6903. How often have you to send samples for examination in regard to adulteration?—On an average about fourteen samples are taken in a week. It runs to about five hundred or six hundred samples in the year.

6904. In what percentage of the cases is the milk found to be adulterated?—In 1910, 8.8 per cent. were found to be adulterated. Out of a total of five hundred and seventy-five samples taken, fifty-one were found to be adulterated.

6905. Have you the figures for any year previous to that?—I have not them with me here.

6906. Can you tell me whether last year the figures were higher?—They were higher than in the previous year. There has been a decrease since about 1904.

6907. How long have you occupied your present position?—I am thirteen years appointed under the Food and Drugs Act, and eighteen years altogether under the Corporation.

6908. Has the number of samples of adulterated milk been steadily decreasing?—They are slightly on the increase for the last year. I think that that could be explained more or less, because there are a large number of samples taken. That is to say, where we used to take one sample from a man we now take

more. A man has four cans of milk and mixes them—mixes the inferior milk with the good milk in order to pass our examination—and we adopted the system of taking samples out of each can. In one case I had eight summonses against one man—he had eight cans of milk.

6009. Do you make any examination of the milk-shops?—I do.

6010. Have you any difficulty in securing samples of milk for analysis?—None whatever.

6011. Has any attempt been made to evade the law by storing the milk in apartments other than the shop itself?—I had one instance of that four years ago, but I overcame the difficulty by employing a private purchaser, whom I sent in to purchase the milk, and I had it analysed, and the person was fined in the local court.

6012. You, of course, have a good deal of experience of the way in which the offences are dealt with under the Order of the local authorities?—Yes.

6013. Do you believe that the magisterial authorities co-operate with the Public Health authorities in enforcing the conditions necessary for the production of a pure and cleanly milk supply?—I do.

6014. You think the penalties imposed are sufficient for the offences if convictions are obtained?—The majority of cases are first offences, and where the man charged has been for years in the trade. This man may have to buy milk from another dairyman, and he undertakes that he will be more careful in future. The magistrates take his character and this undertaking into consideration. The greatest penalty that they dread is the publication of the report of the prosecution in the local newspapers. The question is often asked, *why* the case be kept out of the *Belfast Evening Telegraph*, there is no question about the fines. There is a rush to try and get the case through as soon as possible before any representative of the Press is in court. If the case appears in the newspapers it destroys a man's character. We had cases where people had to go out of the trade; no one would take milk from them.

6015. Do you find you have to summon the same individual frequently?—We have seldom a third case against the same man. The man carries on his trade more carefully after prosecution.

6016. In the report presented by Dr. Baillie I see that in one instance the milk was certified to contain only 1.97 per cent. fat. We learned that that was a case in which the prosecution was instituted by you. Can you ascertain what the penalty imposed in that case was? the percentage of fat was 1.97?—In that case the purveyor of milk lived outside the city and obtained his supply from farmers in the district. He had five cans on his cart when he came into the city. Samples were taken from four of them, and when asked for a sample of the fifth he said there was no milk in that can. On looking into the can I found there were about six or eight quarts of poor-looking milk.

6017. It was not entirely untrue when he said there was no milk in the can?—No. He said he had lifted that can from a farmer, and that he must have left the water in it. He made that explanation before the Court, and said that he was at the mercy of the other man that supplied him, and that he would be more careful in future. The magistrates imposed a fine of £5.

6018. Was that one of the most substantial penalties that was imposed in your experience?—No; I think they run the length of £80. There was a penalty on a milkman of £10, about five years ago, and he went out of the trade.

6019. Was that man guilty of many offences?—It was either the fifth or sixth offence as far as I remember.

6020. I take it, it is no part of your duty to make inspection of outside dairies from which the milk is supplied?—I did that until the dairy inspector was appointed.

6021. I suppose it would be rather difficult for you to answer this question—whether any improvement has taken place in the condition in which the cows are kept now as compared with the time you were familiar with the existing conditions?—So far as I know, I think there are improvements taking place, because when I was going to the outside dairies there was no proper inspection made whatever. It was generally the relieving officer who was acting as sanitary officer over the dairies, and I do not think

the law was very well enforced in those days. My opinion is that no inspectors should be appointed by the local authorities of the district whatever. There should be an inspector outside their jurisdiction.

6022. You would be in favour of having the inspection by a person independent of the local authority altogether?—Yes, I do not see how he can do his duty, because the members are composed for the most part of people who own cattle in the district or their friends.

6023. Of course, that condition prevails elsewhere, and it would obviously go to show the necessity of having officers either appointed by a central authority or supervised in the discharge of their duties by some officer appointed by a central authority?—That is so.

6024. Would you think it more effective to have the original appointment made by a central authority, or that the appointment should be made by the local authority, and that there should be supervision by an officer under the central authority?—I think the latter would be the best. The local officer could say, "I must do this or I will lose my position."

6025. Are you in favour of licensing cow-keepers?—I am.

6026. Do you think it would be helpful in the enforcing of the provisions of the Dairies and Cowsheds Order?—I do.

6027. What conditions would you impose for the granting of a licence—would you take into account the personal character of the man who is making the application, and whether or not he had been carrying on the trade previously in a fair and straightforward manner?—I would.

6028. Would you be in favour of refusing a licence to a man who had been convicted, say, three times of selling adulterated milk?—I certainly would.

6029. Are you conversant with the fact that the milk yielded by different animals in a dairy might be of a different standard?—I am.

6030. Have you ever discovered any case in which an individual cow persistently gave milk below the standard?—I have in the case of fats, but never in a single instance where fats and non-fats solids were below standard in the sample. I have never yet got a sample of milk from a mixed herd below standard in fats and non-fats solids.

6031. The Commission has been informed by a person responsible for the control of a large dairy in another district in the country, that in one particular instance a cow, which was yielding rather an unusual quantity of milk, persistently gave milk that would render the owner of the cow, if the milk was sold as it came from the animal, liable to prosecution?—That is so, but in Belfast I have never come across a person selling milk from one particular cow, and that person should be prosecuted just the same as a person who has a large number of cows and waters the milk. I do not see any difference.

6032. Mr. WILSON: You would not blame the cow for not giving milk up to the Corporation by Jews?—I would blame the man for selling the milk.

6033. Having regard to the evidence that we have had, that in a large herd under Government payment cows have been known to yield milk containing less than the legal standard?—We do not prosecute a man for a slight deficiency in fat.

6034. The CHAIRMAN:—You do not observe what is regarded as the legal standard?—No, because if the person proved that the milk is as it came from the cow the magistrates will not convict.

6035. MR. McNEILL:—Do you think milk yielding 2-9 of fat as frequently produced?—No, I think the great majority of dairymen have their milk never below 3.50, and in a great majority of cases the fat is up to 4 per cent., with the exception of the month of July, and they are only getting the same price as those who have only 2.9 per cent. of fat.

6036. The CHAIRMAN:—What is the ordinary commercial price of milk in Belfast?—Std. a quart. That is the milk of a man who can supply milk showing over 3.50 or 4 per cent. of fat. My idea is that he should get a certificate of the quality of his milk for the past year.

6037. Do you suggest that the cow-keepers that sell the milk that just saves them from prosecution, test the milk to see what percentage of fat is contained before they send it out, and satisfy themselves that they will be simply obeying the principle of the law and save themselves from a prosecution—do you suggest that that is actually done by a certain class of

cow-keepers?—I believe there are a number that reduce the quality of their milk by keeping back the skimpage and adding water. These are the people who come to court to give evidence to show that their milk varies, yet their milk scarcely ever varies three per cent. the year round.

6038. You find when you take a sample that it is just above the borderline that saves the vendor from prosecution?—Yes. I think I should have power to take a sample of the milk after milking and compare it with the milk the man was selling in the city. I had prosecutions where people gave evidence that the milk was genuine, and I persisted in the court in stating that the milk was not genuine. One case was allowed to allow me to take another sample of the milk, and in every case I found that it was 20 or 30 per cent. above the standard.

6039. What action did the magistrates take in that case?—There was a penalty imposed.

6040. Was it a substantial penalty?—In the last case I had the penalty was 10/-.

6041. Do you not think that that was entirely inadequate for an offence of that kind?—Yes, I was not satisfied with it.

6042. You are also a sanitary officer, are you not?—Yes.

6043. Do you happen to know what quantity of milk the ordinary artisan would take into his house for the support of his household where there were three young children?—A great many of them just get about a pint in the day. Some only half a pint, and some scarcely any. In the very poor class districts they have no regular milkmen going about and the milk is used only for the tea as a rule.

6044. To what do you attribute that? Is there a want of appreciation on the part of the heads of families as to the value of milk as a food for children, or is it because they are too poor to buy the milk?—Both causes—not sufficient means and not sufficient knowledge of the value of milk.

6045. In a house where the wages would be 30s. a week, what quantity of milk would they take in?—From two to three pints a day.

6046. So that the quantity is usually regulated by the amount of the income?—That is so.

6047. I presume you have had an opportunity of seeing where the milk is kept—do they observe any care with regard to keeping it covered or free from contamination?—No.

6048. They do not seem alive to the necessity for doing so?—They generally store the milk in the scullery in an open vessel, and there is no protection from flies. In the case of condensed milk, they just open the tin and keep it open till it is finished.

6049. Is there much condensed milk used?—Yes.

6050. Do they use it because they cannot get pure fresh milk?—They do not seem to realise the difference between the two.

6051. The condensed milk is a white fluid and colours the tea?—Yes.

6052. They do not go any deeper into the merits of the milk?—No. In the summer, when they get the sweet milk it becomes sour, and the tinned milk does not.

6053. What price would the tinned milk cost when the water is added per pint or per quart?—I think it would become more expensive than the fresh milk. It works out slightly more than that.

6054. Does it not seem absurd that it should be used in that case when it is dearer?—Yes, but the working classes do not think of that as a rule.

6055. Do you think that they feed infants on condensed milk?—Some do, but not a great many. A great number of them that get the new milk get it out of the shops, and by the time that the supply is taken from the bottom of the milk-vessel it is practically stale milk.

6056. They never seem to realise the difference between milk that would be really rich and milk that would be abnormally poor?—No, they do not. Of course, the better class go much the same, because they look to the price. I have known large houses in different districts buy milk elsewhere, because they got it at a penny a quart cheaper, though in one case they would be getting over four per cent. of fat, and in the others only three per cent.

6057. Is that milk of a poor quality sold at the same price as the higher quality of milk?—The same price.

6058. And is it sold to the same class of customers?—Not altogether the same. In the better parts of the city they go in for the higher quality of milk.

6059. In residential districts would there be any trade in this poor milk?—Not so much as in the working class districts.

6060. The poor man gets the worst value for the limited supply that he takes for his family?—That is so.

6061. That is very deplorable?—Yes.

6062. Lady REYNOLDS.—I see you suggest that it should be made an offence to send dirty milk into the city?—I do.

6063. Have you ever confiscated milk at the railway stations?—No. It is very difficult to form an opinion as to the milk being so dirty as to prosecute.

6064. We had evidence yesterday that some cows arrived at the station with newspapers between the hind and the milk, have you ever found that to be the case?—I have.

6065. What would you do in a case of that kind?—I have no power to take any action. That is where the difficulty will arise, I think, in the rural authorities enforcing the law, because the man supplying the city must have his milk sent away before an o'clock in the morning, and the Inspectors would have to be early risers to catch them.

6066. It has been suggested to me in Dublin that the officers of the Corporation should have power to summon these people?—Yes, I agree, but we have no power.

6067. What is the good of your inspection then?—It is for the prevention of adulteration.

6068. You have power to prosecute for adulteration?—Yes.

6069. But you have no power to prosecute for dirty milk?—No.

6070. You suggest that licensing would be better than regulation?—Yes.

6071. Have you had any experience of dried milk—is it used in Belfast?—I have never seen it used.

6072. Would you say that there is a scarcity of milk in Belfast, or is there a sufficient supply?—During the past year we had a scarcity. On account of such an abnormal season the milk was not so plentiful.

6073. Do you think if the people would buy it that there would be a sufficient supply?—I think so, but owing to the price the dairyman would not think it worth their while to sell the milk.

6074. Do you think that the mothers realise the food value of milk for their children?—I do not think so.

6075. Mr. O'BRIEN.—Is separated milk sold in Belfast?—I do not mean skim milk, but separated milk?—Yes.

6076. What is the price of it?—Three halfpence a quart.

6077. Surely that could not be separated milk. That must be skim milk?—It is separated milk.

6078. In my own creamery district it is sold at one penny a gallon?—We pay a penny a pint for it in the streets and three halfpence a quart, but there is not much of it sold in Belfast.

6079. The CHAIRMAN.—What is the nearest creamery to Belfast?—Glengall Street.

6080. Is there one in the city?—Yes.

6081. And do they sell separated milk?—Yes.

6082. They sell it at a penny a pint?—Yes.

6083. Lady REYNOLDS.—How about buttermilk? Is there much sold in Belfast?—Yes.

6084. Do you find that it is adulterated?—Yes, more so than the sweet milk.

6085. Is the milk supply to Belfast hospitals inspected?—Yes.

6086. Samples are taken?—Yes.

6087. Are there many guests kept in the City of Belfast?—No.

6088. You do not know anything about the rural districts?—No, I do not.

6089. Professor MERRIM.—What do you mean by dirty milk?—When the surface of the milk is covered with lard and straw, or dust.

6090. Visible dirt?—Yes.

6091. Is that largely due to the receptacle or the shorn not being in good condition?—Yes, and also because the farmers do not strain their milk.

6992. Is some of it due to the filthy condition of the churns before the milk is put in?—I would say so.

6993. You mentioned also about the milk being adulterated?—Yes.

6994. What is the adulteration?—Principally the addition of water or preservatives. There might be a few percentages of fat.

6995. Because the fat is abstracted?—We do not call that adulteration, but the abstraction of fat.

6996. You take samples occasionally?—I do.

6997. In the street, I presume?—In the street, in the shops, and at the railway stations.

6998. How do you take these samples?—When I am purchasing in the ordinary way I take them in the course of delivery. Where I see a man delivering I get him for a pint of sweet milk. Sometimes I get it from two ones mixed together. I divide the sample into three parts, and have them labelled. One is given to the seller, another is sent for analysis, and the third I keep. I keep the milk in bottles.

6999. Are they always sterilised?—They are clean bottles.

7000. As regards these milk shops, what do you require from the owners?—We do not allow them to have vegetables in the shop, or coal, or lamp oil.

7001. What things could be sold in the shop?—Ordinary groceries.

7002. The place where the milk is kept, is it registered specially, or can he keep that milk in any part of the place he likes?—He cannot keep it in a living-room or bedroom. He has to state where he is to sell the milk.

7003. Supposing there is a shop in front and a room behind, can you go into the room behind and inspect it?—I can inspect that as a sanitary officer.

7004. You go to the shop in a double capacity?—Yes.

7005. And can you take samples of milk as a sanitary officer to that room?—I have never seen milk stored that way except on two occasions. I think all the milk is exposed to public view.

7006. Mr. WILKINS.—Have you a standard of dirt—you spoke of making it an offence to send dirty milk into the city?—We have no standard, but I would aim at Professor Symmers' standard.

7007. In the milk shops in the poorer neighbourhoods, is it your business to see that covers are kept on the vessels?—There is a milk shops Inspector, and that is his particular branch of duty, to look after these shops. My principal business is to look after the adulteration.

7008. You use the word "adulteration" in the sense of adding water?—Yes, and abstraction of fat, if the milk is deficient in fat.

7009. Mr. O'BRIEN.—In the report of milk that you say is adulterated, do you produce any evidence that there is a low percentage of fat or solids, or do you put it in the form, so much added water?—In the summer I state the date that the offence took place, and I state that the milk was certified by the public analyst to be adulterated with so much per cent. of added water, or that it was deficient in milk fat. In addition to that I send a copy of the public analyst's certificate to the defendant, so that he has the total percentage of the milk and all explained there.

7010. There is no danger of a farmer or supplier who has sold milk which is below the standard being designated as a person adding water to milk when it may be that the milk is poor in quality itself?—I don't think so. When we get a sample of milk slightly below the standard for the first time we never prosecute. We invariably find that the vendor has not been supervising the milk, and in case we find the milk wrong again, we bring him before the Court. If there was a slight deficiency of fat, the magistrates would not convict, seeing that the man had not been up before.

7011. Do you find much difference in the quality of the morning and evening supply of the milk?—The evening milk is richer in fat than the morning milk, but the non-fat solids are not so high as in the morning.

7012. From what we have heard about the quality of the milk here, it is rather above the average of milk in point of fat—you say it is up to 4 per cent. of fat? Is that from the samples taken morning and evening?—Both ways. We have had milk containing over 5 per cent. of fat during the past year.

7013. Some witnesses said that there was not very much separated milk concerned in the case?—No.

7014. Is it that people have a prejudice against it, or the supply is not brought to them, or they do not recognise the real value of it taken with oatmeal porridge? One of the witnesses said yesterday that there was not very much oatmeal porridge used in town now—that the townspeople do not eat much of it. Is that due to prejudice, or is it that they do not know the food value of oatmeal porridge with separated milk?—That is really so. They don't really understand it.

7015. If there was a large supply of separated milk, do you think that they would take it?—I don't think so, except they were educated up to it.

7016. You do not think they would use it for tea?—No. They would take the condensed milk before it.

7017. You say that separated milk costs about three halfpence a quart?—Yes.

7018. That is expensive a gallon?—Yes.

7019. That is very high as far as my experience at the South goes?—I am talking of where they are retelling it through the streets on hand-carts.

7020. That is delivering it practically?—Yes.

7021. Everyone can get a supply of separated milk at threepence a gallon from a creamery put on the tins. I suppose that would mean about fourpence a gallon delivered or fourpence halfpenny. Do you think that there would be a demand for it at that sort of price?—I think there would be.

7022. It is more because they don't know the possibilities of separated milk that they do not use it than anything else?—I think that is so.

7023. What would you say would be the average price of milk supplied here all the year round?—A shilling a gallon is the average retail price through the city. Really some of the vendors don't get that on account of the bad debts.

7024. One would gather that you must have a more plentiful supply of milk than in Dublin, because the price there is greater. With regard to train-borne milk that you take samples of for dirt, do you think it would help you if the cans for the collection of the milk was put on the Railway Company; what I mean is, that the Railway Company should have power, and should be compelled to refuse any milk being put on their trains that was not in proper cans, properly sealed? I should think the Railway Company suffer a good deal from having cans put on to their trains with lids that are not properly fastened. Do you think if the Railway Company at the milk sources were made to refuse all cans that were not properly sealed, that that would be rather a way of getting a cleaner supply?—I don't think so. I don't think the sealing of the cans affects it in the least.

7025. You think the milk is put in dirty?—Yes. I don't think there is any tampering with the milk in transit. I don't see how it could be done without such persons being seen.

7026. Such cases have happened where cans were tampered with?—The greatest case of adulteration that happened here was in the case of a man who had his cans looked, and other cans that were unlooked were all right, and this man's milk was adulterated every time samples were taken.

7027. Do the Railway Companies take care in regard to train-borne milk?—They should have nothing in the waggon but the milk, and they should have also a shed at the stations.

7028. As present the milk is thrown out on the platform?—Yes; I think that is most objectionable.

7029. You think that there is a danger of dirt getting into it in that way?—Yes.

7030. And it is very often left on a hot afternoon to stew on the platform?—Yes. I think there should be a shed at the station for the changing of the milk.

7031. The CHURMAN.—They don't take away the purchasers' cans in the Belfast case?—Some don't.

7032. Sir GEORGE WOODHOUSE.—What kind of condensed milk is generally used in Belfast?—It is principally skim milk.

7033. How is it labelled on the tins?—It is simply labelled "Machine skim milk."

7034. Do the people understand that that is skim milk?—I don't think they do. The whole milk costs sixpence, and the machine milk only threepence, and that is what they take into account—the price. In some of the machine skim milk it is stated on the

ture, "Owing to the absence of fat, this milk is incomplete for the food of infants," but these words are in very small letters; others have not these words on them.

7003. This milk is bought largely by the very poor classes?—Yes.

7004. These are the very poor classes, in which the mothers are working in factories?—Yes.

7005. So that in the raising of infants, the infants have not as many of the advantages of being nursed by their mothers?—That is so.

7006. And therefore they are more dependent on the class of milk?—Yes.

7007. Have you had prosecutions for preservatives in milk?—Yes.

7008. With what results?—We got convictions.

7009. What fines would be imposed?—From £2 to £4.

7010. Have you had many cases of convictions for the use of preservatives?—In 1910 we had no case, but in 1911 we had five cases.

7011. Miss McNeill.—Have the convictions been fairly consistent?—I don't think we would be able to get a conviction for anything less than 20 per cent. below the 2 per cent. standard of fat, because it is left open to the defendant to prove that the milk was genuine.

7012. What is the highest percentage of deficiency in fat that you had?—The highest was about 60 per cent.

7013. What would that work out at?—About one point something.

7014. About 1.43?—Yes.

7015. You got a conviction?—Yes. I think if it was over 30 per cent. the magistrates would convict, but anything under that I don't think we would be able to get a conviction.

7016. The Chairman.—Don't you think that there is some danger in adopting that standard—don't you think that the very fact that the Belfast Public Committee do not feel justified in undertaking a prosecution when the standard is not lower than 7.50 per cent. is calculated to have a bad effect?—When it reaches 2.6 we do not prosecute for the first time.

7017. Do you think that when it is known to the vendors that if the standard reaches 2.6 they will not be prosecuted, they would be inclined to keep the milk at that standard?—Yes, that is my reason for saying that the standard is no protection for the public at all. Milkmen understand that perfectly well. That is the reason why some of the milk at the present time is of an inferior quality. These men keep it low, with the result that they are keeping down prices. The man with the better quality find it difficult to make any profit.

7018. Suppose you rigidly adhered to the legal standard, and that in every case below the legal standard you prosecuted, don't you think that the odium thrown on the Court that would refuse to assist the Public Health Authority would induce the magistrates to alter their views with regard to convictions?—I don't think so. As the law stands, it leaves open to the defendant to prove that the milk has not been tampered with, and was sold as it came from the cow. The magistrates' point is that they would be charging this man with perjury, and they are slow to do that. That is the case that is presented to the Court on behalf of the defendant—that if the magistrates convict they are showing that they do not believe the man's oath.

7019. I can quite understand, but it must also be understood that these vendors are interested parties?—I would like permission to have several samples taken when the cows are being milked.

7020. You recognise that there is a danger that you induce the milk producer to sell milk that will move away from him from prosecution?—Certainly. As the law stands at present, we can do nothing else.

7021. I think it is a question rather of the administration than the law, because convictions have been obtained elsewhere?—I have noticed ones in Dublin, and also across the water, where the men were prosecuted, but could not satisfy the magistrates that the milk was as it came from the cow, pleaded having got it from someone else. In that case our magistrates would convict. He must be able to prove, that it is as it came from the cow; where it is shown it is milk as it came from the cow, I don't think the magistrates would convict.

7022. Miss McNeill.—That is where the man is the actual producer?—Yes.

7023. The Chairman.—On that principle, if a man is accused of murder, and goes into the box in his own defence, and says, "I did not commit the murder," he is entitled to an acquittal?—Yes.

7024. It would seem that principle would lead you to an impossible conclusion?—There is no doubt about it.

7025. Lady Eversham.—Do you consider that the by-products of milk—butter and skim milk—should be licensed?—I think the Order should apply to them just as well. In 1903 and 1904, and up to 1906, there were a number of cases of typhoid fever in dairy farms which produced milk and butter, and sent their produce to Belfast while the patients were ill in their houses. If the regulations applied to them as they do to the ordinary city milk, that would be stopped.

7026. Mr. Wilson.—Would you be surprised to know that in England more than 21 per cent. of the milk contamination was due to the railway?—I heard of that.

7027. Which of these milk churns is the usual type of churn you see on the Belfast platform?—The principal is the one in which the lid does not fit properly; I think there could be no improvement made as regards the cover. I would not blame the Railway Companies for that, but the producers.

7028. But that would agree with your opinion?—The funnel-shaped neck of the churn is quite unprotected. It is the part grasped by the man handling the cans, and also the surface over which the milk flows from the cans into other receptacles. As persons working with the churns rarely wash their hands, and usually spit upon the palms before they touch the cans, the chances of them escaping unimpured are slight. Then thus—a lid more calculated to allow contamination of the milk could not possibly be chosen. Dust accumulates in the funnel-shaped portion, and either falls past the margin of the lid, which generally fits badly, or is washed off when the milk passes from the can. It is quite common for the milk to wash up over the rim lid during the handling, and to take dust on the top in the process. During wet weather, any dust which escapes being washed in by the milk in this way is carried into the can by the rain. Would that be the regular condition at the railway station at the present time?—I believe it would.

7029. Consequently it follows that the standardisation of these milk vessels would be very desirable?—It would be.

7030. Lady Eversham.—We had evidence yesterday that Rabber Clubs have been established in Belfast?—Yes.

7031. Do you consider that they have done good?—I think they certainly have.

7032. You think that they are doing good work in Belfast?—Yes.

7033. You have got no pasteurised milk in Belfast?—We have in a creamery.

7034. Not for sick children; there is no municipal pasteurising depot?—No.

7035. Mr. O'Brien.—Do you inspect the milk vessels in the shops?—I do.

7036. You have the milk emptied out of them, and inspect them to see whether they are clean?—Yes.

7037. Do you find many churns with a brass band soldered down the side with varnish?—Some are.

7038. You object to them?—I recommend the owners to do away with them.

7039. You have no power?—We have actually to prove that the milk is affected by them.

7040. You think that that kind of band is a source of contamination and dirt—the brass bands get loose, and from a little well for bacteria to lodge in?—That is so.

7041. Would you do away with them altogether?—Yes.

7042. When finding contaminated milk in these cases, where do you find the contamination mostly lodged?—Primarily in the seams of the side of the can, showing that the vessel has not been cleaned properly.

7043. Do you not think it would be a great deal in having them clean if you had the lower part of those twenty-gallon churns made in one piece, and the seams joining it on to the upper and about half way up, so that the seams that joins the lower to the upper and would be within easy reach of a person putting in his hands?—That would be an improvement on the present system.

7044. You have never seen a can of that sort?—No.

7056. The CHAIRMAN.—You are a Veterinary Inspector to the Public Health Committee in Belfast?—I am, sir.

7057. And portion of your duty is to make an inspection of the cows that are kept in the dairy yards within the city boundary?—Yes.

7058. And you have under you, as we learned yesterday, a subordinate, who makes an inspection with regard to the manner in which the attendants and workers in the dairy observe the rules laid down by the Diseases and Cows' Order regarding cleanliness?—Yes, quite so, sir.

7059. And you are mainly concerned with the condition of the cows from which the milk is produced?—That is so.

7060. You have about two hundred cow-keepers in the city, and about 3,400 cows?—Yes, of course, that number varies.

7061. How long have you occupied your present position?—Almost five years.

7062. Have you any reason to complain of any attempt on the part of the cow-keepers to evade the regulations laid down for the purpose of ensuring healthy stock?—No, the very opposite.

7063. On the whole, they are willing to carry out the instructions given to them, and anxious to co-operate with you?—Yes.

7064. Do you make periodical examinations of the udders of the cows?—Yes, sir, I am very particular about that.

7065. And if you should discover a suspicious cow what action would you take?—If the owner was agreeable, I use the tuberculin test; I also take samples of the milk for bacteriological examination.

7066. Do you find owners of cows are anxious to have the tuberculin test applied in order to see whether their animals react?—They don't object, as a rule.

7067. They don't place any difficulties in the way?—No.

7068. Do you change the location of the animal that reacts and separate her from the herd?—It is not always practicable.

7069. They have not a vacant space where you could house the animal detached from the general herd?—No.

7070. And if the cows do react from the test what follows?—Under power given by the Tuberculosis Prevention Act I value the cows, and have them slaughtered and compensate the owner.

7071. On what principle—the limitation of £10?—Yes.

7072. Do you think that is a reasonable compensation to pay?—In the cases that come under my notice it was, but in the case of a very valuable cow it would not; in the case of the cows that I caused to be slaughtered it was very fair compensation.

7073. You have no misgiving, in ordering the slaughter of an animal, in thinking that you are inflicting a financial loss on the owner?—No.

7074. If you did find it necessary to order the slaughter of a valuable cow, don't you think you would like to give the full market-value to the owner?—Yes, I think that should be brought under the notice of the Public Health Committee, and if they suggested that more should be given, it would be quite right that it should be done.

7075. I rather apprehend that they would not have the power?—No.

7076. But in the event of the Order being altered in the future, don't you think that permissive power should rest in the officer making the valuation to give the full market-value of the cow?—I do.

7077. And don't you also think that it would lead to the owners co-operating more promptly with the local authority to secure that animals of that particular type should be eliminated from the herd?—No doubt of it, sir.

7078. Have you, in the course of your examination, discovered clinically tuberculous udders?—I have.

7079. In many instances?—I have in four.

7080. And what action did you take?—I took samples of the milk and subjected two of the cows to the tuberculin test. They were both reactors, and Professor Symonds found the milk teeming with tubercle bacilli.

7081. And in that case slaughter was ordered?—Yes.

7082. Mr. WILSON.—That was the one about which evidence was given this morning?—Yes.

7102. The CHAIRMAN.—Your Public Health Committee never complain of the burden imposed on them by reason of the compensation when they were satisfied that it was necessary for the protection of the public health that the animal should be slaughtered?—They encouraged me to do it.

7103. That is what I would have expected. Where you find the udder suspicious do you invariably have the milk subjected to bacteriological examination?—In every case.

7104. And if the bacteriologist should confirm the diagnosis, and the animal reacts to the tuberculin test, you would never hesitate to slaughter?—Never.

7105. Has it been the practice of any cow-keeper to have his whole herd subjected to the tuberculin test periodically?—Not in the city.

7106. Outside the city?—Oh, yes. There is one dairy belonging to Mr. Grange where the stock is subjected to the tuberculin test by the veterinary surgeon, and every precaution is taken to procure a clean supply of milk.

7107. If that had occurred in the city I would like to have some information about it. There is no case in which the general herd of the city under your continual observation has been subjected to that test?—Not the whole of the herd.

7108. We have had a good deal of evidence about the difficulties with which the Public Health Committee here have been confronted, owing to a very large proportion of the milk which is consumed in the city being sent in from outside?—So I understand.

7109. You have no personal knowledge of the conditions under which the cows are kept in those outside districts?—I have gone to quite a number of them.

7110. Making a post-mortem inspection for your own information, but having no statutory right to examine them?—Yes. In some places we were not allowed in at all.

7111. And I understand the tendency is rather to restrict the number who are willing to have their persons examined—the tendency is rather to resist outside inspection?—They do in the great majority of cases.

7112. What was the general condition of the premises in those outside districts?—Generally speaking, they could not be worse—absolutely filthy in some cases—low ceilings, either light or ventilation, dirty cows, badly bedded, defective floors—everything that you could really think of.

7113. So that it would be practically impossible for the milk coming out of byres, kept in the condition which you have described, to be cleanly and pure?—It would not be possible to get a pure milk supply out of byres like what I saw.

7114. Did the owners offer any apology for the condition in which the animals were kept?—Some of them thought they were doing grand. They do not think they have dirty cows or byres, or anything to do with dirty milk. It seemed to be entirely want of education.

7115. And do you think if the provisions of the Order had been vigorously carried out in those districts by the local authority that it would have been impossible for the cows to remain in that condition?—If the Order had been carried out in the proper spirit it certainly could not be possible for the cows to be in that condition.

7116. Did you ever have an opportunity of seeing these cows milked, and observing whether or not the milkmen seemed to pay any attention to the matter of cleanliness?—I was not there at the time of milking.

7117. Owing to the condition in which the animals were kept it would be well-nigh impossible to have the milk clean?—Quite so.

7118. Do the city milk-masters complain that they are at a disadvantage in being obliged to compete with others who can send milk into the city, and who are not hampered by the restrictions imposed on them?—They do complain.

7119. Is it not a reasonable ground for complaint?—Certainly, I think it is very reasonable.

7120. Do you think that the application of the Order in the City of Belfast has been educational in its effect, and that those who are engaged in handling milk are now much more careful than they were previous to the Order being enforced?—I have not the slightest hesitation in saying that it has had a very beneficial effect.

7121. Generally speaking, the condition of the milk raised in the city area is fairly satisfactory?—Yes, it is fairly satisfactory.

7122. Where are the cows bought for the dairy herds of Belfast—is there a market in the city for the sale of cows?—Yes, every four days, and every Wednesday, I think, is the day for the milk cows.

7123. Do you make any inspection of the cows offered for sale?—I do occasionally, but not as often as it might be made. I have not time to look after it.

7124. Have you ever seen an animal exposed for sale as a milk producer that would be obviously tuberculous?—No, never.

7125. It has been no part of your duty to make anything like a minute observation of the milk cows in the fairs?—No. I do inspect the sale yards where they are selling fat cattle for beef, and I have on several occasions seen poor cows there that were diseased, and I seize them under the Public Health Act as being unsound cattle.

7126. I observe from the figures that there are an abnormally large number of cows slaughtered in Belfast city. Can you explain the reason?—I have asked several butchers about that, and their explanation is that they get a better return for their money. Cows do not cost so much per pound, and owing to the amount of fat found in good cows, they are more suitable for sausage-making, which is earned on largely in Belfast.

7127. Does that account for the fact that there has been such an abnormally large number of cows slaughtered in Belfast?—I would say so.

7128. These cows that are slaughtered are not cows that have been supplying milk to the city at a previous period as a rule?—Not as a rule—some of them have.

7129. We were told here yesterday that a great number of them came from Dublin?—In fact the majority come from Dublin markets; but, of course, we are not saying that those are Dublin dairy cows.

7130. You have discovered that a fair percentage of these have been affected with tuberculous lesions?—I have.

7131. And these as milk-producers would be a source of danger to the public health?—Yes.

7132. So that it would appear that in some parts of the country a fairly large proportion of cows are yielding milk that is a source of danger to the public health?—That is so, sir.

7133. Have you ever discovered that any of the cows that have been milked in Belfast and subsequently fattened off were, when slaughtered, suffering from tuberculous lesions?—Well, I cannot distinctly say that, because they go into the market, and I am not very certain whether they would be Belfast cows or cows coming from surrounding districts.

7134. I take it that it is the custom of the cow-keepers in Belfast, after the milking period has ceased, to fatten their cows for beef?—That is their object.

7135. A very large proportion of the meat consumed in Belfast is slaughtered at the slaughter?—The majority of it.

7136. There are only quite a small number of private slaughter-houses in the city?—Only four.

7137. I was rather startled to find that there was a tremendous trade in very young calves in Belfast?—Yes, and an increasing trade.

7138. What is your opinion, as a professional man, as to the food supplied by these animals?—It is of a very poor quality. There are not very sensitive qualities in real.

7139. These animals could hardly be designated as real, because I believe they are slaughtered within a week of their birth?—About a fortnight.

7140. Do they feed them on milk during that period?—That I cannot tell you. I don't know.

7141. I want to know whether there was an attempt made to improve the quality of flesh that these bones would carry?—I cannot tell you.

7142. Do you see these animals previous to slaughter?—I do.

7143. Do they look as if they had been smothered and fed?—They look plump, healthy calves.

7144. Can you give me any reason why these animals are slaughtered indiscriminately like this?—I would take it that the owners, perhaps, could not provide the milk, and at being the winter time, they cannot turn them out to grass. I do not know any other reason for slaughtering them so indiscriminately as they do.

7145. Are they the produce of cows that are kept for the milk supply of Belfast?—Not entirely. The farmers bring them in from the country.

7146. These farmers having grazing lands will vendise them in the same way?—Yes.

7147. What price do they realise?—About 15/-.

7148. They must set extremely little value on live stock when they ruthlessly slaughter them in such huge numbers?—I am surprised at it myself.

7149. Don't you think it is an economically unwise and unsound policy?—Very.

7150. To be starving the live stock of the country in this way?—I do.

7151. So far as my knowledge goes there is no such trade in Dublin at all?—I know there is not.

7152. And I am quite at a loss why there should be such a tremendous difference between two cities not very far apart?—Before I was appointed, there was no such thing as calves being slaughtered in the slaughter. I got a notice inserted in the local Press, and compelled the people to bring in the animals. I know they slaughter calves in Dublin at a young age.

7153. Not until they have reached a certain degree of maturity in flesh, but to slaughter them a week or a fortnight old is a ridiculous waste of money and stock?—I quite agree with you.

7154. Did you tell me where the cows are bought that go to make up the shortage in the Belfast dairy herds?—They are bought in our local fairs and in our city markets.

7155. Do the cow-keepers go to the outside parts of the country?—The dealers do and the cow-keepers buy from them.

7156. It is rather startling to learn that there are butchers that trade only in these calves?—That is so. We have butchers in the town who deal in nothing but calf meat.

7157. At what price per pound is it sold?—From fourpence to sixpence.

7158. Is it mainly used by the poorer classes?—That I cannot say. I would think mainly it is used by them, but others buy a little of it too.

7159. You would form some idea from the district in which this class of butcher carries on his trade?—I know one butcher's shop in a very mixed population—some very good people and some very poor people—which does a very big business exclusively in these animals.

7160. It seems very unaccountable to me. You would be in favour of licensing cow-keepers as opposed to registration?—I would not only be in favour of licensing the purveyors of milk, but the buyers themselves, so that if these were not in proper condition you could withdraw the licence.

7161. You would positively enforce the same conditions as are now in existence as regards the sale of spirituous liquors?—That is my idea.

7162. And you would also take cognisance of the character of the person making the application?—Yes.

7163. And if you were not satisfied that he would be likely to carry on a legitimate trade, you would empower the local authority to refuse him a licence?—Yes.

7164. Do you think that would be helpful in ensuring that the milk supply of the city would be pure and hygienic?—I do, because they would be under our control, more or less.

7165. And I take it you would be in favour of the extension of the Dairies and Milkshops Order to all purveyors of milk, whether in the city or outside?—Yes, I would.

7166. Do you think it is possible to secure an efficient administration of this or any other Order of a similar character when appointments are made by local authorities, the majority of whom would be interested in the trade?—No, I don't think that they could possibly carry out the Order in the proper spirit if they were interested in the trade. Indeed, I would be inclined to think that the local inspector should be a whole time officer, and not have any private interests at all.

7167. He should not be dependent on other people for patronage or for his livelihood?—He should not.

7168. Would you prefer that the local authority should appoint an officer and have his work supervised by a superior officer, controlled by a central authority, or would you be in favour of having the original appointment made by the central authority?—I think the original appointment should be made by

the central authority. Veterinary surgeons should be appointed for each province, so that they could supervise the work of the local inspectors, both veterinary and lay.

7166. You would, of course, be in favour of having at least one Veterinary officer acting for each Local Authority?—Yes, at least one.

7170. And all the subordinates reporting to him on questions which would need professional knowledge to deal with?—Yes.

7171. And who would be only responsible for what might be described as the mechanical portion of the work?—Quite so, sir.

The following table shows the prevalence of tuberculous amongst cows and heifers for the past three years:—

1908-9.						
	Number Slaughtered	Enter- ably Affected and Con- demned	Passed after Removal of Local Affection	Lesions found in udder		
				Sub- stance	Gland	Both
Cows, .	25,521	148	564	No records kept.		
Heifers, .	1,416	8	18			
1909-10.						
Cows, ...	17,628	201	1,129	4	22	11
Heifers, ..	852	1	29	—	—	—
1910-11.						
Cows, ...	16,598	205	1,895	5	18	15
Heifers, ..	1,201	24	44	—	—	—

7172. Mr. WILKINSON.—I notice that you say in this table of figures regarding the slaughter of cows, that in lesions found in the udder you distinguish between the substance and the gland, and both?—Yes.

7173. What distinction is there between the substance and the gland?—The udder proper and the supra-mammary gland.

7174. You state that the number of animals that passed after the removal of local affection was in the first year of the table 564, and the next year 1,129, and 1,695 in the following year. What is the explanation?—That the disease is on the increase.

7175. Not a change of policy?—No. The first year, 1909, might not have been as correct as it should have been. That was the first year of the statistics, but in the second year the system was getting better, but still on the same policy.

7176. It occurred to me that you might have changed your system?—No.

7177. The same remark would apply to the table dealing with extensively affected and condemned animals—they all increased?—Yes, from 146 in 1908-9 to 261 in 1909-10, and so 225 in 1910-11; but you will notice that the number slaughtered increased to 17,628 in 1909-10. We had only 14,325 in 1908-9.

7178. You say that when you suspect an animal of tuberculous you ask the owner to allow you to apply the tuberculin test?—Yes.

7179. Would you not consider it desirable to make that power compulsory in case of the Veterinary Officer making the inspection?—It would be well.

7180. Would you approve of that?—Certainly.

7181. Have you any reason to suspect that serious cases of tuberculous are privately slaughtered that you have no means of recording?—Well, it is quite possible but I don't know of any such cases.

7182. You do not think it occurs to any great extent?—No.

7183. With regard to the number of cows in the city, you say that fluctuates?—Yes.

7184. Do you know whether the fluctuation has been affected by the Order?—I mean the number fluctuates at certain times of the year. I do not think it has anything to do with the Order.

7185. The Order has not restricted the number of cows supplying milk to Belfast within the last year?—No.

7186. With regard to the seasonal fluctuations, that means that the cows go out to the country on grass?—Yes.

7187. Do you follow your cows to the country?—Yes.

7188. Shortly speaking, you have no jurisdiction outside?—Well, the Dairy Inspector is on their track all the time.

7189. We had evidence in Dublin that the city was that gone to the country is inspected by no one?—Not so in Belfast. We have them under observation.

7190. Professor MERRAN.—Referring to your statement, Mr. Jordan, I see that you say that a large number of animals have been extensively affected and condemned?—Yes.

7191. And that in the case of others, portion of the udders is removed, and the udders is then passed?—Yes.

7192. Do you think that diseased cattle in the city are sent into the country to be slaughtered, and brought in again in the shape of flesh?—It is possible, but I do not think it is carried on to any great extent.

7193. As to the examination of the dairy cows, how often do you examine them?—Personally about three times a year, but the Dairy Inspector is over them frequently.

7194. He is a layman?—Yes.

7195. What kind of an inspection do you make?—A general inspection.

7196. You examine the animals and the udders?—Yes.

7197. Is tubercular mastitis easy to diagnose?—It is very difficult.

7198. I suppose you come across quite a large number of lesions in the udder other than what you would consider to be tuberculous?—Very many.

7199. Is the milk taken from these udders subjected to bacteriological examination?—In a great many cases. If I am at all suspicious of the udder, I have a sample taken.

7200. I presume that you examine more particularly udders that show chronic lesions?—Quite so.

7201. With regard to the purchase of dairy cows, I think you told us that the majority of the cows were purchased in the city?—Yes.

7202. Do the dairymen go into the country themselves to purchase these cows, or do they purchase them through dealers?—The majority purchase through dealers.

7203. They don't go into the country themselves and buy?—No.

7204. Is there any insuperable difficulty in purchasing these cows subject to the tuberculin test?—I don't see that there should be any difficulty, but it is not done here.

7205. Do you think that it is practicable?—It is, certainly.

7206. Well, the animals themselves would have to be kept in the market for a certain length of time before and after the test?—I understood by what you asked that perhaps these cows should be tested before being sent to the market. I don't think it would be practicable to carry out the test in the market.

7207. Don't you think that the cow that came up with a certificate that it has passed the test, that that certificate might not refer to it at all?—That is so. I misunderstood your question.

7208. As regards the calves that are killed, are they killed for human consumption?—Every one of them.

7209. Is there any trade in the hides?—They don't get much for the hides.

7210. You don't think it is possible that the calves are killed for that purpose?—No. They are killed for human consumption.

7211. You do not think that there is much nourishment in that calf flesh?—No.

7212. Lady EVERARD.—Do you think that the retailer of adulterated or dirty milk should be held responsible in the first instance, and that he should recover damages from the person who supplied him with the milk? That was put before us in Dublin—that the retailer should be liable in the first case, and that he should recover damages from the person who sold him

the milk?—The retailer should see what he was buying, and if it was dirty milk he should refuse to accept it. He should be held responsible, and let him proceed against the party he bought it from.

7215. Do you consider that all by-products of milk—butter, better milk, skim milk and separated milk—should come under the same Order as new milk?—Yes.

7216. Mr. O'BRIEN.—Are those many milk cows sold in the market?—Yes, great numbers of them.

7217. Or, rather, bought by the local people who are dairymen?—Yes.

7218. They buy in the market in Belfast?—Yes.

7219. Is there any practice of boys and girls going into the market with all sorts of vessels milking the cows?—Yes, that is the practice.

7220. Cows that are being kept without being milked for twenty-four hours, and then milked into any sort of dirty vessel at the market?—Yes, and we can scarcely keep these people outside the shelter.

7221. What sort of provision have you to prevent that practice in the market?—We have no special provision.

7222. Would it not be advisable to have some sort of a provision?—Yes.

7223. The people take away that milk which is more or less poisonous, and in dirty vessels?—Yes.

7224. So far, you have no regulations to deal with that practice?—No.

7225. Are there pigs kept in the town at all?—Yes.

7226. Have you any difficulty in keeping them out of the same place as the cattle are kept—the same yard?—If they are a proper distance from the byres, you cannot prevent people keeping them in the same yard, but it would be a good thing if it could be done. No pigs should be allowed in yards where milk cows are kept.

7227. Because you have the offensive smells, and they would contaminate the milk?—That is so.

7228. Is there much tuberculosis amongst pigs?—My experience is that there is not much generalised tuberculosis amongst pigs.

7229. Professor MERRIAM.—In any form?—It is common in the ordinary localized form.

7230. Mr. O'BRIEN.—Is it supposed to be in any way contagious to other animals?—Tuberculosis in pigs?

7231. Yes.—Human beings could be affected by it and cows too.

7232. Are there the same sort of regulations passed about pigs that are tuberculosis as there are about cows?—Quite the same regulations.

7233. They take samples of the flesh?—The pigs are inspected—the pork is inspected in our market when it is brought in for sale. It is impossible to inspect every carcass.

7234. If it is found tuberculous it is condemned?—Yes.

7235. Do you think that the cows in whose milk tubercle bacilli have been found have invariably tuberculous of the udder?—Not at all.

7236. It does not necessarily follow?—No. You could have them in a very advanced stage of tuberculous, and yet have the udders apparently free.

7237. But on slaughter, do you not always find that there are some lesions?—Oh, no; perfectly healthy.

7238. Professor MERRIAM.—What we would like to know is if, in your opinion, an animal that has tuberculous without having a tuberculous udder would give tubercle in the milk?—Yes.

7239. Mr. O'BRIEN.—What I wanted to know was, though the udder might be absolutely sound and the cow showing tuberculous in some other way, whether on slaughter of the animal they did not find always that the tuberculous was to be found in the udder itself, if the tubercle bacilli is coming through the milk?—That is not so.

7240. Mr. STEWART WAINMAN.—Are goats kept in Belfast to any extent?—There are some.

7241. Do they come within your purview?—No. I have seen several of them in Belfast.

7242. Mr. WAINMAN.—About the system of licensing, we had it suggested in Dublin that the premises should also be licensed in addition to the cow-keeper?—Yes.

7243. That would involve a double system of licensing—the man and the premises?—I would pay far more attention to the licensing of the premises than to the licensing of the man, because you could get a very respectable, clean-looking man, and yet he would be selling very dirty milk, and have his premises in a very filthy condition.

7244. You would not think it desirable that there should be a double system of licensing like that?—I don't know how to get out of the difficulty, but I would certainly pay more attention to the byre and the cattle than to the man.

7245. These houses would have, of course, to be re-ventilated?—Yes.

7246. But the chief point, you think, in licensing would be that the houses could be remodelled in the event of the man misbehaving himself?—Yes.

7247. Lady EVERARD.—If you find a cow with tuberculous of the udder, what steps can you take to prevent that milk being used in the city?—I would have her at once slaughtered under the Tuberculosis Prevention Act.

7248. The CHAIRMAN.—Is there any other point to which you would wish to direct our attention, Mr. Jordan?—Nothing further than that the Commission might visit some of our byres in the city, and also it would be nice if they could see the premises of Mr. Wilson or Mr. Granger, where I was a few days ago, and I was very much struck with the cleanliness and the condition of the stable.

7249. I hope it may be possible for the Commission to pay a visit to these dairy yards. It would be very interesting to the Commission, and instructive as well.

Mr. WAINMAN.—Would you take us to one of the bad yards?—We would take you wherever you would like to go.

7250. Professor MERRIAM.—Do you know where the worst ones are?—That is a very hard question. I would take you to any district in the city.

The CHAIRMAN.—Thank you, Mr. Jordan, very much for your evidence.

MR. JAMES GREGG, M.R.C.V.S., examined.

7251. The CHAIRMAN.—You are a Veterinary Surgeon?—Yes.

7252. And you have an appointment under the Holywood Urban Council as Inspector?—Yes.

7253. And you are also a member of the Belfast Corporation?—I am.

7254. We have heard a great deal about the conditions under which the milk is produced in the city area, and we would like to hear about the method of controlling the production of milk outside the city. Is any milk from your district sent into the city of Belfast?—No. It is kept exclusively for the inhabitants. They are small cow-keepers, and they distribute their own milk.

7255. With regard to the quantity produced, is there any shortage?—Well, I cannot say that there is any shortage. So far as I know, in Holywood we have a sufficient supply. You see, it is not a working-class district, and the people requiring milk can afford to pay for it, and get plenty of it.

7256. But there is some working-class population in the district. Have you any notion as to whether or not they can procure what is needed for their families?—They can procure it, but unfortunately, like other working-class people, they do not seem to get enough.

7257. Is it due to a shortage of money or to want of appreciation of the value of milk as a food?—Want of appreciation, because they buy other things, such as porter and condensed milk, I understand, which would be sufficient to get them a good milk supply if they understood what they were doing.

7258. So that your opinion is that the people do not recognise the value of milk as a food, especially for infants and growing children?—Yes, I hold that opinion.

7259. Do you make an inspection of the cows which supply milk in the district in which you hold your appointment?—Yes. I make an inspection of the cows and the cow-houses both, periodically, about every two months.

1296. What has your experience been—have you discovered in the course of these investigations any cases that were clinically tuberculosis?—I discovered some cows that were clinically diseased. In the first inspection I made in 1909, I discovered four diseased udders. On applying the test two reacted. I advised the owners to get rid of these animals.

1297. How—not by slaughter?—They were fattened and slaughtered for beef.

1298. Were they practically dried off at the time, and had ceased to be milk suppliers to the district?—Yes.

1299. And in the other two cases?—I put them down as simple mastitis or some other indolent.

1300. And there was no re-action?—Not in these cases.

1301. Did the owners offer any objection to the application of the tuberculin test?—No, they were very reasonable about it, indeed.

1302. And you have no cause for complaint with regard to any difficulty owing to their want of co-operation with you in carrying out the provisions of the Order?—They seem to work with me very well. Whether it is that they do not know their powers, I do not know, but they seem amenable to reason.

1303. And your word is law to them, and they do not look for statutory authority for the orders you issue?—No.

1304. Would you be in favour of licensing cow-keepers?—I would.

1305. You think it is a desirable thing, and would be helpful in carrying out the provisions of the Order?—I think it would be a very good thing, indeed, and a very simple way of bringing delinquents to a sense of their responsibility.

1306. And you would be in favour of the character of the applicant being taken into consideration when he applied for a licence, and giving the Local Authorities the option of refusing if they thought the applicant unsuitable?—Undoubtedly.

1307. Where are the cows bought that supply the herds that yield milk for your district?—Most of them come from the West of Ireland, and the Counties of Cavan and Fermanagh.

1308. Are they bought direct or through dealers?—The dealers buy them from the farmers of the district, and fetch them to the Belfast market, where they sell them to the dairymen.

1309. And your cow-keepers remark their herds from that source?—Yes.

1310. You have formed some opinion as to the causes that have led to the difficulty of procuring milk?—Yes.

1311. Do you think that the present system of breeding is in some sense responsible?—Yes, I have held that for some years—that the shortage of milk, especially amongst farmers around here in the Counties of Antrim and Down, has been due to the fact that the Shorthorn bull has been used for a number of years. I hold that the shortage of milk among that type of cow is entirely due to the breeding.

1312. And the influence of the bull?—Yes.

1313. Are the bulls you speak of premium bulls under the Department of Agriculture?—Most of them are. Of course, there are other bulls bought indiscriminately at bull sales which have an equally bad effect. I hold that the example of the Department in using these bulls without knowing anything of the previous milking records of the dams, has a distinct influence on others buying bulls of that class.

1314. You contend that when a Government department sets an example of producing these animals, it gives a lead to other people?—Yes.

1315. Do you believe that the keeping of milk records would tend to the elimination of light-milking cows from herds?—Yes. The keeping of the records is absolutely necessary.

1316. Are milk records kept at all generally in your district?—Only by a very few. The Department of Agriculture has instituted a system of records for registered dairy cows. I know a number of people who are keeping records for that purpose, but unfortunately there are few dairymen, say, one or two, who are keeping records.

1317. Do you believe that the introduction of this record-keeping will be educational, and that its influence is likely to extend outside the scope of the

scheme with which it deals?—Yes, I follow you in that. I believe that you cannot have any real education without the milk records, and that you could not know really what you are doing agriculturally without keeping the records.

1318. And that it would not be possible to proceed with the scheme which you contemplate unless records were kept?—No, it could not be properly gone on with.

1319. Not intelligently or sensibly?—That is so. My contention is that a man who rears half calves should be in a position to show the records of the dams of these calves to the purchaser.

1320. You are aware that the Department has a scheme aiming in that direction?—Yes, I know.

1321. Do you think it is a well-conceived scheme, and moving in the right direction?—I think the dairy scheme is very good, but unfortunately a great deal of harm has been done which will have to be undone. What the Ulster Milk Improvement Association would like would be that the Department of Agriculture should assist on our County Committees buying more bulls of a milking strain for Ulster.

1322. They are not yet available under the scheme?—No, not very many of them yet.

1323. At all events, you are satisfied that the principle of the scheme is on a solid foundation?—Yes.

1324. And that it is moving in the direction you would wish?—Yes. I am satisfied the scheme is a good one, and likely to do good.

1325. Have you any opinion as to what number of people, say in County Down, are co-operating with the Department in developing that scheme?—I know a few, but I cannot give you any statistics. I know a few who are keeping milk records for the purpose of getting their cows registered with the object of breeding these dairy bulls, but I cannot give definite figures.

1326. I only wanted to know whether it was popular, and likely to take on with the farmers who have the opportunity of developing the scheme if they so desire?—I know of some who gave it up because of the trouble of keeping records.

1327. I understand. There is always a difficulty in getting people to do it continually. They do it spontaneously, and say it is not worth the trouble, and even in the North of Ireland, I suppose, that type is to be found?—Yes, as well as in the South.

1328. Of course, you are strongly convinced that there should be a general application of the Dairies and Milk Shops Order by all the Local Authorities?—Yes.

1329. Is the Order being enforced by the Holywood Council?—The Holywood Council do their duty very well, indeed.

1330. Are you appointed under the Order?—I have full control. I have an Inspector under me. I have full control of him and the Order in Holywood.

1331. Do the adjoining Authorities put the Order into operation?—They do. They have got a Veterinary Inspector and a lay Inspector as well—Belfast Rural District Council and the Chesham Rural District Council, which are the Rural Councils round Belfast. They do their work very well, I understand.

1332. Is the milk supply of Belfast sent in from these districts to any considerable extent?—I should say that perhaps one-third of the supply to Belfast comes from these two rural districts.

1333. I am hardly inclined to think that the evidence given by the Belfast Public Health Authority would corroborate the view that the Order is rapidly and efficiently enforced there?—There is another, a third district, further afield where the milk comes from.

1334. And the trouble comes from that quarter?—Mostly. There are some people in the two districts mentioned that it is not easy to manage.

1335. Do you not think, as regards the enforcement of the provisions of the Order, that it would be possible to compel obstinate individuals to comply with its provisions?—Yes. There was one individual in Holywood who gave me a good deal of trouble, and I was loath to have him summoned, and I said—“The Local Government Inspector will be round after me, and for my sake as well as your own, I want you to do what I ask. If you do not do it there will be trouble.” He immediately had the work executed. I find it is a good thing to have a superior officer with which to threaten them.

7498. Mr. WILSON.—Was your superior officer an imaginary individual?—No, he is Dr. Brian O'Brien.

7499. The CHAIRMAN.—You happen to live in a district that is somewhat ideal, because it has been represented to us that there is a great difficulty in enforcing the carrying out of the Order where the officer is under the direct control of the Council, many members of which are engaged in the dairy business themselves. May I inquire if any members of your Council are themselves cow-keepers?—No, I do not think so. Undoubtedly in the other rural districts the cow-keepers have great influence.

7500. Over the cows?—Over the Rural District Council.

7501. Seriously speaking, do you see considerable difficulty in securing uniform and regular enforcement of the Order when the officer would be under the control of a body, members of which would be interested in the trade?—Yes. I think that you will never have the Order properly administered with any reasonable co-ordination until you have a Central Authority.

7502. You do think that it is essential that it should be controlled from some Central Authority rather than by the Local Authority?—That is so.

7503. Would you be satisfied with having one officer in each particular district, and having a lay Inspector working under him to look after the mechanical part of the work?—Well, I should say that it would be necessary to have a lay Inspector, but I should say that he should be under the control of the professional Inspector.

7504. You think that a lay Inspector might do a considerable portion of the work—looking after the cleanliness of the byres and the cows, and other matters of that kind?—Yes, it is necessary to have a lay Inspector for detective work. The professional Inspector should make an inspection every two months of the cows and sheds, and whatever orders he gives should be carried out.

7505. Would it be possible to have a professional man seeing for more than one district?—It would depend on the size of the district and the number of cows registered. We have some districts where the number of cows registered for the sale of milk is very small. There are other districts where creameries are in existence, but that does not hold so much here, where an Inspector is required. Where the creameries are not in existence, and the people do not sell milk in a fresh state, of course, the Inspector might be able to do two or three districts.

7506. Would you apply the conditions of the Order to farmers who do not sell milk at all—would you make them subject to inspection?—Yes.

7507. You would not give them the privilege that one of the witnesses this morning was disposed to give them—to poison their families?—No, and a man should be prevented from injuring his own children by giving them impure milk.

7508. Mr. WILSON.—Would that entail a very large increase in the work?—Yes, and it would entail a large increase in expenses undoubtedly.

7509. Can you form any estimate of how much?—Probably it would increase it by two-thirds or three-fourths. Round here I am sure it would increase it by two-thirds.

7510. The CHAIRMAN.—Do you think that the introduction of bulls with the object of providing beef has had an injurious effect on the milking strain of the cows of the country?—That is exactly what I have been driving at. We have improved our beef at the expense of our milk.

7511. You were dealing with Shorthorns. Would the same objection arise with regard to the Aberdeen Angus?—More. They are not so much used here as Shorthorns. They are only sparingly used.

7512. They produce an animal that comes to early maturity, that is very popular in some districts?—Yes.

7513. I see that you are willing to give us particulars with regard to what is called the Bang method of concentrating tuberculosis?—Yes, I think that that should be applied. I would like to see it applied to our farms.

7514. What is the method to begin with?—The method is simply this.—You examine the cows daily; test them with tuberculin, and you isolate the reactors, that is, you put them into a house by them-

selves, and milk them as long as they have milk, and sterilise the milk. You are preparing them in the meantime for the butcher, and as soon as they are ready for the butcher they are killed off. The calves are separated from their dams, and are fed on the sterilised milk and kept separated, so that a man who goes in for this policy and has his cows tested before he passes them into his stock, has a chance of keeping the disease out of his herd.

7515. It would need a considerable amount of expense to ensure that all these conditions were rigidly adhered to?—You could not do it unless the owner was willing to assist you. If the owner were willing to co-operate, I think the State should supply the veterinary inspection and the tuberculin.

7516. You think they should assist to that extent?—Yes.

7517. Do you think that the milk of rearing cows is a live source of danger to the public health?—Yes, I hold that if a cow is clinically diseased in any way, that she is a danger both to other cows and to the persons using the milk, and I think such cows really should, if they are found by the Inspector to be tuberculous, be got rid of—that is, they should be destroyed. Of course, the Order gives certain powers of this kind, and in Belfast here we have put them into force. Mr. Jordan has put them into force once or twice, and given compensation, but I think there is hardly enough done.

7518. That leads up to another question. Do you approve of the limitation of the amount of compensation to be paid?—I should say £10 is too little.

7519. Do you believe that if a discretionary power were left with the executive officer to give the full value of the animal, it would lead to the more general application of this principle?—Yes.

7520. And it would also ensure the prompt and cordial co-operation of the cow-keepers with the Local Authorities in the stamping out of disease?—It would encourage the cow-keepers very much, and make the work of the Inspector more pleasant.

7521. And you would be in favour of withdrawing that limitation, and giving the officer appointed discretionary power to do what he thought would be reasonable and just?—Yes, and I do not think any officer would overstep his duty.

7522. I do not suggest that he would. He probably would go about the discharge of this portion of his duty with more courage if he knew that he would not be likely to inflict a financial loss on an individual in connection with the slaughter of his animal?—That is so. We will never get it rightly done until it is scheduled by the Department of Agriculture.

7523. Is there any other point to which you would wish to direct the attention of the Commission, Mr. Gregg?—No, I do not think so. My evidence was very largely on the shortage of milk in the country districts, and I am very keen on the breeding up for milk. I hold that we can have as good Shorthorns from the herd standpoint, and also have a milking strain, as you can have without the milking strain.

7524. Can you suggest any other method beyond that of the Department of Agriculture?—I think the Department should be more inclined to hear on the breeder of Shorthorns to make them bred from cows of a milking strain. It has been given over and over again to me, and I know of some cases myself, where young Shorthorn bulls had to be reared by a foster mother. Of course, these calves are fed in the herd, and the farmer has no means of knowing whether the bull is from a dam such as this or from a good cow. I think the Department should make the bull-owner give some form of guarantee as to the quality of milk given by the dam of that bull. I believe that if the Department did that it would have a great effect on the conformation, and it would not affect in making the bull-breeder try to procure cows that were of a good milking strain—Shorthorn cows. In that way you could get conformation which would be good enough for beef, and a strain that would not injure the milking qualities of the heifers, at all events.

7525. I am inclined to believe that is accomplished off?—It is.

7526. Because when the majority of Shorthorn cows are subjected to the milking test, their produce would hardly come before the public with brilliant records from the milking point of view?—Take the Right Hon. Sir Frederick Wrenn, he would not keep a Shorthorn cow except she was a heavy milker.

7327. Lady EVERARD.—You said that it would be very desirable if the Government gave a grant for the application of the tuberculin test?—Yes.

7328. £5,000 is set aside yearly in Denmark for that purpose, and they also give prizes for herds that are free from tuberculosis?—I knew they did something in that way.

7329. Do you consider that all by-products of the milk—butter, buttermilk, skim milk, and separated milk—should come under the same regulations as new milk?—Yes, they should all come under the Order.

7330. Do you consider that the retailer of milk in the town should be held responsible for the milk sent in to him from the country, and that he should recover damages from the person who supplied him?—Yes. If the retailer is responsible to us in the city, the man who sells the milk should be made responsible to the retailer.

7331. In the first instance, it has been suggested that the retailer should be made liable to the Public Health Authority?—Yes, and let him look to the man who supplied him for damages.

7332. And you also consider that a whole-time officer would be advisable?—Yes; you would get the Order better administered undoubtedly.

7333. Mr. WILSON.—You told us of the Bang method. Would you tell us about the result of it in actual application in your own experience?—Well, you see, I do not pretend that I applied the Bang method in Hollywood. I tried a little experiment, and it was very satisfactory—that is, the owners of the cows seemed anxious to know whether their cows re-acted or not. Of course, they did not follow the experiment up—we had no power to do anything of the kind. They got rid of the re-actors, but how they got rid of them I do not know.

7334. The CHAIRMAN.—Probably sent them into Belshazzar?—I may tell you this, the Urban Council did not encourage me in the way of finances. It has not been continued—the testing of the herds.

7335. Mr. WILSON.—What experience have you got of milk records—do you know of any actual results?—I have no personal experience of it whatever. I know of one or two people who kept milk records, but all of them, with the exception of Lady Dunleath, who keeps a record of both her cows and goats, have given it up. I have no personal knowledge of the matter myself.

7336. At the same time you would look upon it as the essential without which the dairy stock could not be developed?—Yes.

7337. And more particularly in view of the problem of winter dairying?—Yes.

7338. When the yield averages only four hundred gallons in the year, winter dairying is an economic impossibility?—Yes.

7339. Whereas in some the cow gives an average of over six hundred gallons in the year it becomes more of a paying concern?—I do not know how you could make winter dairying pay unless you can have an average of over six hundred gallons.

7340. It is the custom here that people do not breed from their own cows?—They do not.

7341. And consequently they have no interest in the matter of milk records?—No. I know a few people who keep over an extra good cow.

7342. That tendency would be encouraged by the keeping of records?—Yes. There is one individual I know who has kept milk records, and knew what cows to keep over.

7343. You think that would be a wholesome policy to apply on a larger scale?—Yes.

7344. It has been suggested by a previous witness that the Department would do well to lay more stress on the cow side of their plan—pay a man a premium to keep a high-class cow in his herd, and breed from her and keep her over?—That might be done in a few cases, but you know the history of Denmark in this matter. Forty or fifty years ago the cows of Denmark were as poor as any in Europe, and they have now the best in Europe by, I understand, importing bulls only.

7345. Would you be in favour of an attempt to divide the country into beef and milk areas?—Yes. Our County Committees have not got educated up to it yet, and the Department have not given a lead in the matter. As the Chairman said, they have not got

sufficient time, but so soon as they have, I trust they will insist that our Committees around Ulster breed from a nothing strain.

7346. The CHAIRMAN.—Mr. Gregg is largely in favour of a scheme in existence at the present time which the Department is developing, but I can see a further development in the scheme that Mr. Gregg indicates that would be useful, and that is, where pure-bred short-horn are kept, so they are in a large number of cases in Ulster, that the record of the dam should be given as a inducement with the bulls at the sale?—Quite so, exactly.

7347. That is not exactly on the lines of the Department's scheme, but that would be a further development of the same idea, and it would go to produce practical results concurrently with the scheme at present in existence?—It would help to hasten matters.

7348. Prof. MERRAN.—How many cows are there in your Urban District?—Under sixty.

7349. Do you find any difficulty in getting the regulations carried out?—In two or three cases we had to prosecute, but on the whole the people are very amenable. They are rather poor owners there—most men own three or four or five cows. Three of them went out of the trade owing to our restrictions.

7350. Mr. WILSON.—Has that reduced the quantity of milk available?—I do not think so. Mr. O'Rourke can supply the deficiency. We did not insist on new buildings, although some of the buildings were very bad; but we imposed cleanliness and lime-washing, and impervious floors, and lighting. These were all things that any poor man could do, and we insisted on cleanliness above all things, and I may say that we have got it. I think that before the passing of the Order you could not have found dirtier byres than a few of those in Hollywood.

7351. Prof. MERRAN.—What is your method of inspection?—I go round every two months or so and have a look at the cows—pass my hands over the cow and examine the udder. I make inquiries, and then, of course, take notes as to the general condition of the animals and the cleanliness of the byres.

7352. Do you think that the inspection of the veterinary inspectors of the local authorities is fairly uniform?—I think so.

7353. Do you think the requirements of the Rural District Council are uniform?—I am not so sure about that.

7354. You think some are harder than others on the dairymen?—Yes.

7355. Do you find any difficulty in carrying out the simple hygienic rules?—Yes, especially cleanliness in the milker.

7356. They look on it as unnecessary?—Yes. I find in Hollywood, by putting our men to watch them closely, and by doing judicious detective work, we shame them into cleanliness. If you shame them into cleanliness for two or three years they may acquire a habit of cleanliness.

7357. Do the workers themselves object to washing their hands?—Yes.

7358. Do you put them into overalls?—No. As I told you, we have a lot of small men in Hollywood. We do not trouble about overalls or anything of the sort; but I find in my experience in the city and the country districts that the milkers of cows, especially the men—the women are more cleanly—are terribly dirty. Sometimes you will see them milking with quite dirty hands. In many cases I have seen the manure dropping from the hands into the milk below.

7359. You have power to stop that?—Yes.

7360. Have you put that power into force?—I have not had to do it in Hollywood. At least the man under me has not reported anything like that.

7361. About your Bang experiment, it was not carried out in the entirety?—No.

7362. It consisted of periodical applications of tuberculin and the bottening off of the reactors?—Fifty-four out of fifty-nine cows were injected.

7363. It was not one particular owner that took up the method?—No.

7364. The experiments that you carried out were unless practically as an example of the Bang method?—Yes.

7365. Of course, you find that tuberculin has a great diagnostic power?—Yes, it is of great assistance in forming an opinion in other cases.

7366. What is your experience of the incidence of tuberculosis in cattle; do you think that the average that we are getting here are rather below or above

the general average?—I should say, from my experience of about twenty-five years or so, that tuberculosis in cattle is rather on the increase. I find that where you have a well-bred dairy cow—that is, a cow of the Short-horn type—when they get old these animals almost invariably develop tuberculosis. In Belfast they do not get such a chance of developing it, but they do in any of the districts where they are kept over. I have in my mind a herd that I visited of that kind where the cows have been kept over, and 75 per cent. of them died.

7372. Cows kept for several years in a byre show a higher percentage of tuberculosis?—Yes.

7373. Mr. O'Hanra —Have you agricultural labourers in your district?—No, it is a residential district that I represent, and labourers do not live in it, at least not to any great extent.

7374. What is the class of the population in your district at Holywood?—It is a residential district of the middle class. It is only about six miles from Belfast. There is a population incidentally to a small town who carry out the work of the town itself, and the population is very largely composed of people who go up and down to Belfast daily.

7375. It is not what you would call a poor district?—No, I said the dairymen were poor, but the district is not poor.

7376. The supply of milk to this district is necessarily a good deal from the outside, and is brought in by train?—No. It comes from the rural district which adjoins it to some extent.

Mr. W. HENRY MARSHON continued.

7377. The CHAIRMAN.—You are engaged in the dairy trade in Belfast?—Yes, I am a farmer and dairyman.

7378. Are you in the city area?—No, I am in the Rural District.

7379. Do you send milk into the city?—Yes, into the suburbs.

7380. Has the price of milk decreased or diminished in recent years?—It has rather increased, owing to the high price of feeding stuffs.

7381. What is the regular standard price in winter and summer?—1/4 a gallon in summer and 1/2 a gallon in winter.

7382. The district that you supply is not a poor district—it is not a working-class district?—No.

7383. Do you find that the residents in districts such as you supply are keen on the price they pay for the milk?—Yes, they like to get it cheap.

7384. What I would like to know is this—do they realize the importance of getting a pure and cleanly supply?—They seem to recognize the importance of milk. These residential districts that we supply are occupied by business men, who understand the value of milk. There are, of course, exceptions.

7385. Are you in the Belfast Rural District?—No, in the Newborough. We are only one mile outside the city boundary.

7386. What supervision have you got in the Newborough district?—We have a sub-veterinary officer and a veterinary inspector.

7387. Do they pay regular visits to the dairy?—The sanitary officer does frequently, and the veterinary inspector once a month.

7388. Has he ever condemned any animal in your herd as being unsound?—No.

7389. Does he make a careful examination of the cows?—Yes, he examines them, and examines their udders very carefully.

7390. So that you suffer no loss from animals condemned to slaughter?—No. He has condemned some in the district.

7391. Do you keep a large herd?—From thirty to forty cows.

7392. Where do you buy these?—In Belfast market.

7393. Invariably?—That is the main source of my supply. I may buy one from a neighbour.

7394. These cows are gathered by dealers in various parts of Ulster and Connaught?—I suppose half of them would be coming out of Connaught. That seems to be the great source of our supply.

7395. Do you keep any milk records?—No. I weigh the milk, and we weigh the milk of separate cows. As the milking is going on I would weigh it.

7372. Have you power to go into that district too?—No.

7373. But you do?—No. We have a very good veterinary officer in charge, and we depend on him.

7374. The Medical Officer of Health, finding the people under his care infected by tuberculosis or any other disease, would he necessarily inform you about it?—I expect he would, but I have not much experience of it in my district.

7375. In the ordinary course he would, and also the inspector of the Rural District?—Yes.

7376. Miss McNair.—Some witnesses have made comments on the want of a recognised standard of qualifications for lay inspectors. Have you any idea of what should be recognized as qualifying a man for the position of an inspector of dairies?—I should say, in the first place, that the man should know something about dairies.

7377. A man who had been engaged in dairy work?—If possible, and if he could pass the examination of the Royal Sanitary Institute, all the better; but above all, I would have the man a practical man about dairies—a man who had a knowledge of cattle, and what was expected of a clean dairyman.

7378. You would not think that the appointment of a man without any previous experience of dairies or dairy work would be advisable?—I would say that.

The CHAIRMAN.—Thank you, Mr. Gregg, for your evidence; we are much obliged to you.

7388. Do you keep the cows for a second milking period?—Only the exceptional milkers.

7389. It is not part of your system to keep them over from one year to another?—No.

7390. And you think it is economical, from the trade point of view, to buy in fresh milkers and sell them when they are bleached?—Yes.

7391. How long have you been in the wholesale trade?—Twenty years, and I am in the retail trade for twelve years.

7392. Do you think there is any difference in the yield of cows now as compared with twenty years ago?—It was easier to buy good dairy cows in Belfast market then than it is to-day.

7393. You mean cows that would yield a good supply of milk?—Yes.

7394. So your experience would go to show that there is a degeneration in the yield of milk from cows as a whole?—Yes.

7395. Do you agree with Mr. Gregg as to the necessity of developing a breed of cows that would be more generous in their yield of milk?—I do.

7396. Do you think that the introduction of what I might describe as the "meaty" short-horn has a prejudicial effect on the milk?—Yes.

7397. And the Aberdeen Angus?—Yes.

7398. In a greater degree?—Yes.

7399. Do you butter your cows before milking?—I do. We keep them until they reach such a degree of finish as that they will probably realize what they eat.

7400. What period do you keep them for?—Twelve months, and some may be kept into the second year.

7401. Some will milk for a longer period than others?—Yes.

7402. And will not fatten as rapidly as others?—That is so.

7403. Have you any difficulty in enforcing the requirements laid down in the Dairies and Milkshops Order on your servants who are engaged in the milking of the cows?—I exercise supervision over them, and assist on clean bands and cloths.

7404. In the absence of supervision, do you think it would be possible to enforce these regulations?—In some cases it would not be possible.

7405. There are some workers and you could not depend on if you were not there yourself, or some deputy, to see that they were careful in their habits?—Yes.

7406. Is it insisted upon by your local authority that the workers should be provided with the means of washing their hands?—Yes.

7437. Do you complain of the conditions laid down in this Order, and its enforcement on you, as being in any degree exacting with regard to the keeping of cows?—No. I think it is for the people's advantage, and the farmers are beginning to look on it as the same way.

7438. They enter into the spirit of it, and consider that it is the most economic method of carrying on their trade?—Yes.

7439. So that the enforcement of the Order has been no grievance?—No.

7440. The man who wanted to carry on his trade economically and intelligently should put his house in order if there were no regulations in existence?—Yes, and the Order has no effect on them.

7441. And they have no grievance under it?—No. I think our Inspector, when he comes up for examination, will tell you the same thing.

7442. Is there a working-class population in your neighbourhood?—There are some. There are a few labourers and gardeners, and a few people of that class.

7443. Do they secure a reasonable supply of milk?—Better than what the poor in the slums of Belfast would have.

7444. Do you sell any milk at all on the farm?—No.

7445. Do you encourage the trade, or have you no demand?—We would not have people coming about the house.

7446. I mean, can the people in the immediate neighbourhood—the working-class people—procure milk if they have the money?—They can get it from the farmers with whom they work.

7447. Do you supply your own labourers?—Yes. Everyone that works for a farmer is supplied by him.

7448. That is the custom in the district?—Yes.

7449. Are you familiar with the dairy scheme which is being run by the Department of Agriculture for the production of bulls of a milking strain?—I have some knowledge of it.

7450. Are you co-operating in any way?—Not very much in our district.

7451. Have some people applied to have their cows inspected, and undertaken to keep records?—Yes, I know a few.

7452. Do you think that the Department's scheme is in the right direction?—I do.

7453. What do you consider is the average yield of cows brought as yours are in the public market simply on their appearance?—I can only give you the average of a friend of mine who is in the trade, milking forty cows. He took a record of his cows, and brought good cows, and showed considerable judgment in buying them, and they averaged up to almost 600 gallons.

7454. They were good cows?—Yes. He buys good cows, and he pays good prices for them. These average from 700 to 800 gallons.

7455. Forty cows?—Yes.

7456. That would be for a period of twelve months?—Yes.

7457. Are you speaking of the yield of milk for the entire period, or for a fixed period of twelve months?—Yes, for twelve months.

7458. Do your own cows get up to that average?—I don't keep a record, but the cows are very like what I would buy. Any dairyman who would select his cows carefully would have 700 gallons.

7459. I take it you feed your cows well?—Yes.

7460. Do you give them roots—mangelwurzels and turnips?—Yes, and Indian meal and cotton cake and ground oats, and some other things.

7461. What do you believe is the best milk-feeding?—People in the retail trade are very fond of cotton cake.

7462. Have you any difficulty in selling milk when the cows are fed on turnips?—If you use these cakes and meals the favour will not be affected.

7463. Are the cows turned loose during the winter season at any time?—Hardly, in Ulster.

7464. They are pastured in the ordinary way in summer?—Yes.

7465. Do you give them any artificial feeding on the grass?—Always meal and oats.

7466. And the friend of whom you spoke, does he feed his cattle in the same fashion?—Yes.

7467. That would account for the fact in a large degree that he has got above the ordinary yield?—All the farmers in our district feed on meal and oats all the year round. There is no exception.

7448. Can you suggest any means whereby it would be possible to improve the produce of milk from the cow other than the scheme which has already been put into operation by the Department?—I would suggest that they would give premiums for bulls of a milking strain and prizes at local shows.

7449. They do propose doing that?—Yes. Last year, at the North-East Show, there were two premium animals offered for sale, and they sold at a small price—£12.

7450. So you would suggest that prizes would be offered for such animals to compete amongst themselves, and not in competition with the pure-bred shorthorns?—Yes.

7451. I quite agree?—The farmers depend largely on the price list when buying cattle.

7452. So you think it would be a good idea if classes were established at local shows at which these prizes would be offered?—Yes.

7453. The advantages offered at the present time are neither very immediate or substantial?—No. Some of these cattle I mentioned realise little more than store prices. Another thing I would like to say is that I would be very much in favour of the milk records.

7454. Even though you don't keep them yourself?—I have not had an opportunity.

7455. If you were keeping your own cows in 1912 year out you would keep records?—Yes.

7456. Do you ever buy springers?—Yes, always.

7457. What becomes of the calves?—I send them to the country.

7458. They don't join in the general massacre that takes place in Belfast?—No. We don't sell any calves in the market in Belfast. They are ordered months in advance. I attend the market here, and it is only the bad calves that are sent to the market. There are hundreds of good calves sold every week. We have Dublin men who attend to buy calves in our market. They are worth from 25s. to £3 each, and I look upon it as only the badly-coloured calves and the calves of bad shape that go into the abattoir. These calves are only a few days old.

7459. Lady KERRISON.—At the price of store cattle it would pay farmers to rear calves?—Yes.

7460. Mr. WILSON.—You have been in the business long enough to know whether there has been any considerable change in it. Would you say that the margin of profit is greater or less than it was?—Less. We were buying meals and cakes from 14s. to 17s. and now they are from 12s. to 15s.

7461. Would you consider that the cost of the cow you are buying has gone up?—Yes, by 2s. a head.

7462. Have you had to increase wages at all?—Yes.

7463. Has the cost of the carrying out of the Order influenced many people?—I understand it has affected the small towns where people keep one or two or three cows. These people were put out of the trade.

7464. Would you consider that there would be a big loss to the supply?—No, one big man could supply as much as twenty of them.

7465. The reduction in the supply is not serious?—No.

7466. Have you any experience of the tubercle test?—I was interested in it as the case of four 34 cows this year. They averaged £39. We got the veterinary surgeon to test these four cows, with the result that two of the cows reacted and two did not.

7467. This was for your own satisfaction?—For the satisfaction of a friend of mine. One of these cows was sold in a local town. The veterinary surgeon saw the cow killed. She had reacted, and she died a sound cow as far as he could see. The other cow came to Belfast and was sold for £23, and she passed our Inspector as a sound cow; she had also reacted.

One of the other cows went to a neighbouring town and we could not trace her. Her price was £21 12s. she did not react. Another cow was killed in the public abattoir, and her lungs were badly affected with tuberculosis, and she had not reacted.

7468. The CHAIRMAN.—And the tuberculin test was applied by a professional man?—Yes.

7469. That goes to discount the value of the test?—Yes.

7470. Mr. WILSON.—That did not encourage you to bother very much about it?—No.

7471. The CHAIRMAN.—It is very interesting to know exactly what was the result in specific cases where the test has been scientifically carried out?—We had the thing sifted out to the end. We followed the matter up to the very end.

7472. Mr. WILSON.—Do you think that if some means were devised by which the dairy farmer could be encouraged to produce his big milking cows for breeding purposes it would be a benefit to the country?—Yes.

7473. In other words, that the suggestion of the premium cow should be developed?—Yes, but at the same time the figures of the Department show more dairy cows in the country now than ever.

7474. But it does not necessarily follow that they are of the same high quality as they were?—No.

7475. What is your opinion as to the licensing question?—I would have no objection to it. I would favour the individual, but not the premises, being licensed.

7476. The CHAIRMAN.—You would be in favour of a licence only being granted to a person of whom the local authority had some knowledge, and in whom they would have confidence that he would carry on a legitimate trade?—Yes.

7477. Mr. WILSON.—You do not deal with the problem of the supply of milk in the poorer districts in Belfast?—No, but I have heard dairymen talking about it.

7478. Evidently from what we have been told the people in these districts do not get a sufficient supply?—No, they hardly get any.

7479. The people do not seem to know the value of it?—They do not want it.

7480. If they wanted it the dairy trade could supply it?—Yes.

7481. Even if the trade was small?—Yes, they would get any quantity they wanted. It is not the milk that kills the poor people's children, but the want of it.

7482. Have you any comments to make as to the evidence about the collection of samples?—The samples taken by the Belfast officials do not represent the quality of the milk sold in Belfast.

7483. Why?—The inspector's business is to find out the people who are giving a poisonous article. They know the man who gives good milk. They devote all their energies to the shady milk. Good dairymen would not have samples taken from them so often. This brings the apparent standard of Belfast milk lower than what it really is.

7484. The CHAIRMAN.—But from the administrative point of view the practice is quite legitimate, because in reality they are carrying on a poisonous trade that they must deal with?—I do not complain of the men; they are doing their best. I believe we have a higher standard of milk than in Manchester and Liverpool.

7485. Mr. WILSON.—The samples are not taken with a view to finding out the average quality of the milk sold in the city, but of getting at the offenders?—Yes.

7486. And if it were taken to find out the ordinary standard of the milk the record would be much higher?—Yes.

7487. Do you find the inspectors more vigilant in the morning or in the evening?—The majority of the samples would be taken in the morning.

7488. Is the bulk of that milk produced that morning?—Presumably all is produced that morning.

7489. So that there would be a tendency to exaggerate the number of samples that would show a low percentage of faulty material?—Yes. The careful men might come below the standard in the morning supply.

7490. What is your idea as to controlling the supply?—It is as hard as you know it would be practicable.

7491. The CHAIRMAN.—Do you happen to know any dairy proprietor who supplies milk exclusively to a poor working-class population?—Yes, sir. There would be fifty men in Belfast whose trade would be exclusively among the working classes.

7492. I am not reflecting on any individual, but do you think that the men in that class of trade are less careful than men who do a higher class trade?—I don't know really.

7493. Is there any man, keeping a dairy like you do, who sends milk into Belfast and sells it to a working-class population?—I suppose there are.

7494. Do you know of any?—No. The majority of the farmers in our locality raise large quantities of milk, and the purveyors' carts come out from Belfast and fill it at so much a gallon. There are a very limited number who do a retail and wholesale trade. They nearly all sell to Belfast men.

7495. What is the difference between the price paid by the direct consumer to you and the price of the milk to the wholesale purveyor?—I suppose it would be from 3d. to 5d. a gallon.

7496. Surely it does not cost from 3d. to 5d. a gallon to distribute your milk?—I think it costs 3d. a gallon.

7497. Your estimate of the cost of distribution would be 5d. a gallon?—Yes.

7498. Mr. WILSON.—Have you any experience of typhoid carriers?—No; I am glad to say that I have no experience.

7499. Mr. O'BRIEN.—Have you many labourers in your district—agricultural labourers?—There are what the farmers need.

7500. How are they housed?—Some of the farmers have cottages of their own, and there are some Union cottages.

7501. Are there many cottages under the Act?—In our Union I would say four hundred or five hundred, and about three hundred in hands. We stood first in the North of Ireland for the number of cottages we had built.

7502. Previous to that were the labourers well housed?—Not particularly well.

7503. Now they are pretty well housed?—Yes, since the Act came into force. The medical officers have been doing their duty better; they have been looking after the old houses, and houses have been improved.

7504. Now that the labourers live in their own cottages, where do they get their supply of milk?—They mostly get it from the farmer they work for.

7505. But does he not say, "You have got your cottage and you are independent of me"?—In a great many cases the milk is included in the labourer's wages.

7506. So that on the whole the labourer is pretty well able to get a supply of milk?—There is no trouble in our locality. In some localities there might be a little trouble, but not in our immediate district.

7507. The CHAIRMAN.—I would like to know have you any difficulty with your dairy workers?—No.

7508. You get them to attend to their work on Sundays?—Yes.

7509. Do you pay dairy workers higher wages than the farm hands?—We have to pay our milkmen higher wages.

7510. You say you do not have any difficulty in getting Sunday work done?—Not much.

7511. That difficulty has not increased in recent years?—I don't think so.

7512. What wages do you pay your ordinary milkers?—Our ordinary labourers get from 8/- to 10/- a week and their food.

7513. If they were living in a cottage of their own what would they get?—About 14/- per week. This would not include a free cottage and other advantages equal to 2/- or 2½ a week.

7514. And these men assist in the milking?—Some of them. The men working with horses do not milk at all.

7515. The other men engaged on the farm would milk?—Some of them would.

7516. Do any women milk?—Yes, it is partly done with the help of women.

7517. They do nothing on the farm except assist in the milking?—Some labourers' wives would do other things.

7518. What time do you start milking in the morning?—About five o'clock. Every dairymen has his own time. The time of milking depends on the distance the milk has to be taken.

7519. What time is the milking done in the afternoon?—About two o'clock.

7520. Is there much difference between the quality of the milk in the morning and in the evening?—Yes, the evening milk is richer in fat.

7521. Have you ever tested the milk to ascertain how much higher the percentage of fat is in the morning than in the evening?—Yes, many times.

7522. Is there a marked difference in the quality of the milk?—Yes, a great deal of difference. It is lower in solids, but richer in fat, in the evening.

7523. Mr. WILSON.—What about the custom that exists of selling milk in the streets—as that practically a universal custom?—I think it is.

7524. Sometimes there is a shortage in the supply and sometimes a surplus?—Yes.

7525. There is no way of preventing the defect from buying milk from a contaminated source?—No.

7526. The CHAIRMAN.—Has that happened?

Mr. WILSON.—I think it is one of the most risky factors in the trade.

The CHAIRMAN.—Does it sometimes happen, Mr. Morrow, that your man, when he goes out with his own supply, would find that it was insufficient for his own customers?—It might.

1595. And in order to save the customers from disappointment he procures milk from other sources and sells it as your milk?—Yes.

1596. And that milk may happen to be adulterated and unclean, and you would be open to prosecution for having sold it?—Yes.

1597. On the other hand, does it ever happen that your man takes out a quantity of milk which is in excess of the requirements of the day?—He practically knows what to take out.

1598. Is he ever obliged to bring back any?—Yes, a quart or two.

1599. Mr. WILSON.—It is the ordinary convention of the trade to oblige another vendor?—Yes.

1600. The CHAIRMAN.—It would be a serious loss to have surplus milk that could not be churned?—But people have always facilities for churning.

1601. Mr. O'BRIEN.—You gave the average yield of milk in the case of a herd belonging to a friend of yours as 800 gallons per cow for the year?—Yes.

1602. That is a very high average as compared with the whole country. It is practically double the average of Ireland. Does that mean milk only one cow during the year, or is there a succession of cows?—He has an average of forty cows.

1603. During the year?—Yes.

1604. And they were coming in at different times?—Yes.

1605. So that there would be practically the full fresh of each cow?—Yes. These cows would only average one year, and the average was almost 800 gallons. These were not average cows.

1606. Also the percentage of milk fat seems to be high in Belfast. You were saying just now that he had no right to take the samples referred to this morning by the Food and Drugs Act Inspector as representing the quality of the average milk of Belfast—that the average would be higher than these samples would represent?—Yes.

Mr. CHARLES ROSS examined.

1607. The CHAIRMAN.—You are engaged in the milk trade within the area of the City of Belfast?—Yes.

1608. Do you find the inspection by the officers of the Belfast Public Health Committee in any degree onerous or irksome?—I cannot say that I do. I don't think they expect more than what is necessary.

1609. The standard that they have laid down, you think, is perfectly reasonable and legitimate?—Yes.

1610. Do you think it is unfair competition for the dairymen in the City of Belfast to be obliged to compete with those engaged in the trade in other districts where the same regulations are not enforced?—It is hardly fair to the Belfast dairymen. I should say that they were placed at a disadvantage.

1611. What district do you supply?—I live on the Ormeau Road, and generally supply in that district; that is the south side.

1612. Is it a working-class district?—Not altogether.

1613. Houses which are let at a rent of £30 or £30 a year, and which the city clerk or the salesman in the store would occupy?—Quite so.

1614. What quantity of milk would a family of that kind take for the support of the household?—Very little—generally from a quart to three pints for a family of about five; and in my opinion it is quite too little.

1615. That is all they would take, even though there might be small children in the house?—Yes, perhaps a baby on the bottle.

1616. Do you make any special provision for milk for young children?—No. But a customer might ask for the milk of one particular cow and we would give it. Very few now want the one cow's milk, and I think that is due to the advice of medical men.

1617. What has led up to that change, do you know?—So far as I see, medical men have pointed out that there is a danger of one cow going wrong, and that it is safer to take the milk from the whole dairy herd.

1618. They think it is safer to take the milk from the bulk of the whole herd rather than from a particular cow?—Yes.

1598. So that you appear to think that there is an exceptionally good quality of milk in Belfast?—Yes. As compared with Glasgow, Liverpool, and other towns, the standard in Belfast is very much higher. I have the figures here.

1599. I think it is higher than was shown in Dublin, and you sell the milk cheaper, and you don't complain that you are driven out of the trade?—I have the average of some others here where the milk was tested for tubercle. In Glasgow the percentage was 31 out of 243 cows examined; and in Edinburgh, out of 922 cows, the percentage was 18.

1600. Mr. WILSON.—It all depends on how the samples were selected. If they were taken from suspected cows the percentage would be probably higher?—There has been a lot said about inspection. There has been a feeling abroad that there is great objection to inspection. I don't find that at all. Of course, the feeling abroad is that the veterinary inspector objects to anybody but a veterinary inspector going over his work.

1601. The CHAIRMAN.—So that you would suggest that the hostility exhibited is largely due to the fact that the local veterinary inspector objects to have non-professional men going in to criticise his work?—That has been the objection to the Belfast inspector gang out, and that was why they advised the farmers not to allow this inspection.

1602. Mr. JORDAN also found some feeling of its inclination to allow him to inspect in many instances, so that it could not be what you regard as a question of professional etiquette?—He has visited few of the districts. It has been the man under him that has done it. Personally, I am in favour of an inspector from a central body being appointed.

1603. You think that that would be the most effective way to control the trade?—Yes. Having a Local Government District Inspector to look after a certain number of districts. Dairymen are not afraid of inspection. It is more the veterinary inspector who objects.

1599. Mr. WILSON.—Would you not put it this way, that if the one cow goes wrong the child must suffer?—I don't know any dairymen who suppose that kind of milk to be a pretext.

1600. But he might not know it?—Then he does not mind his business. He should exercise special care in the case of infants.

1601. The CHAIRMAN.—Have you any knowledge of the condition in which milk is sent into the City of Belfast which is mixed in the outside area?—Only hear say evidence.

1602. You do not purvey any of it yourself?—No. I produce the milk myself.

1603. You don't take in any milk?—No.

1604. Do you keep any milk records?—Only in a general way.

1605. Do you follow the ordinary custom of keeping milk cows for only one milking period, and then fattening them off?—Yes; dairymen generally do that.

1606. How long are you in the trade?—Since I was ten or eleven years of age, and you can judge yourself how long I am in it from that.

1607. Speaking from your experience, is it your opinion that the quantity of milk yielded by the cow has increased or diminished?—My belief is that it is extremely hard to get a sufficient number of good cattle. Every year it is getting harder apparently. The milking strain seems to be getting weaker. England and Scotland have pretty well ruined Ireland of the good cows. Nothing will do the Englishman but the very best of breeders. They take away all the best milk.

1608. And the result of that is that the milkers or second-class animals are left?—Yes, too great a proportion of them, and too small a proportion of the first-class animals.

1609. Do the cross-channel buyers attend Belfast?—They go to the outside fairs themselves now. They used to come to Belfast.

1610. And they ship direct from the fairs?—They ship from Belfast or Dublin. Of course, Irish born dairymen, as a general rule, don't want buyers of the first or second milking.

1266. Have you any views as regards licensing—would you be in favour of it?—I would, certainly.

1267. And you do not think that the people in the trade would have any reason to complain if it was made universal?—I would not, and I do not see how anyone could.

1268. Would you think it would be reasonable to invest local authorities with power to refuse a licence to a person whose antecedents would not warrant the belief that he would carry out a legitimate trade?—Yes.

1269. Have you any difficulty with your workmen; are they more difficult to procure?—They are more difficult to procure. There are not so many workmen as there used to be, and we find it pretty hard to get them.

1270. We had it in evidence in Dublin that these workers were nomads and people without fixed residences. Is there a want of continuity in their services?—I have not found it so. One man is with me twelve years; another ten or eleven years, and the other men nearly as long.

1271. Mr. WINSON.—Would it be fair to ask the rate of wages?—Twenty-two shillings and sixpence a week, and some milk and some extras—generally their tea.

1272. They reach the level of the skilled labourer in the city?—Yes. These three men never lost any money while in my service.

1273. The CHAIRMAN.—When do they start work?—They start about five o'clock in the morning and continue as late as possible in the evening.

1274. Do you find considerable difference in the quality of the morning and evening milk?—I find it is not so great in any case, because I acquire the periods of milking.

1275. Mr. O'BRIEN.—How do you manage to send your customers in that case—don't they expect to have their milk delivered at a certain hour?—They have to take it when they get it.

1276. The CHAIRMAN.—Living in the city you have not to waste an hour or an hour and a half to get into the city?—Quite so.

1277. It is whipped into the carts and delivered immediately?—Yes.

1278. And you save considerable time in that way?—Quite so.

1279. Have you any reason to complain of the manner in which samples are taken for analysis?—No, I think it is done very fairly.

1280. Do you consider that the return made in the report of the Medical Officer of Health for the Belfast district fairly represents the standard of milk sold in the city?—No, because, as the last witness explained, the samples of delinquents are taken very often.

1281. One can quite understand why that is done from the administrative point of view?—Yes.

1282. Your point would be that these samples are not a fair indication of the ordinary standard of milk supplied to the city?—That is my opinion.

1283. Regarding the price paid for cows, in your experience has it varied—is it greater or less than it was?—Greater, and showing an increase every year.

1284. A steady increase?—Yes.

1285. Do you give grains to your cows?—No. I don't like them.

1286. Do you feed your cows to beef when their milking period is finished?—Not altogether. We always keep a bull in the winter season, and will serve a proportion of the cattle.

1287. You don't sell the cattle off after one milking?—Yes; we only serve cattle that have proved remunerative.

1288. You don't keep records?—No.

1289. Do you know from general observation that these samples are profitable to keep?—Yes.

1290. Would you tell us what is the average of your herd in the twelve months?—I would say about 500 gallons.

1291. Would they reach that standard?—Yes. The town dairymen buy a good class of cow.

1292. Do you feed any roots to your cows?—Yes, about 35 lbs. a day. We seldom give them mangolds.

1293. Do you give them turnips?—Yes.

1294. Is there any difficulty with regard to turnips feeding the milk?—I never heard any such complaint.

1295. It needs a little caution in the feeding to ensure that there would be no favour given to the milk?—If the cattle are milked immediately after being fed on turnips there is a taint, but if they see not fed until after they are milked there is no trouble. I feed my cows according to the price of the feeding stuffs. I must have hay.

1296. You don't like straw?—I prefer hay. Of course, if a man has store of his own there is temptation to use it.

1297. You would prefer to buy hay at an enhanced price rather than give straw?—Yes.

1298. Are grains used by any city dairymen?—I should say they are used by some people in the milk trade.

1299. But, as a rule, they are not regarded as a suitable diet for dairy cows?—I cannot tell you what other people think.

1300. They are so regarded in Dublin I know?—Certainly I agree with that.

1301. Lady EVELING.—Do you keep your cattle in the house in the winter?—Yes.

1302. The CHAIRMAN.—During the summer do you send them to grass?—Yes.

1303. Have you land of your own?—Yes, and I take some as well.

1304. Has there been any increase in the rent charged for grazing land during recent years?—I cannot say there has.

1305. Mr. WINSON.—I take it broadly that you would subscribe to Mr. Morrow's opinions regarding the questions I put to him?—I should say I would.

1306. The CHAIRMAN.—Have you given any consideration to the question of improving the dairy herds in the same manner as Mr. Gregg indicated?—I did not hear Mr. Gregg's evidence.

1307. Anything that would improve the milk-yielding properties of the cow would be of interest to you?—Yes.

1308. And you would approve of any scheme with that object?—Yes.

1309. Mr. SHERIDAN WOODHOUSE.—You made reference as to how samples of milk are taken for analysis?—Yes.

1310. Is it that you don't think that the present methods are the best methods?—I don't see how there could be any improvement. I find that the inspectors take samples from all the dairymen in Belfast, but much more often from men who are of a doubtful character.

1311. The CHAIRMAN.—Is there any other point, Mr. Rose, you would like to direct the attention of the Commission to?—I cannot say there is, except that I would like to see outside dairies inspected.

1312. Are you in favour of a uniform administration of the Dairies and Cowbush Order?—Yes.

1313. You think that the conditions under which milk is produced in the country should be the same as in the town?—Yes.

1314. And that it is unfair competition to have men in the city competing with men in the country, where there is no strict supervision?—Yes. The regulations are not so good in the country, ten or twelve miles away, but they would be good enough near the city.

1315. What would be the maximum distance from which milk would be sent to Belfast?—There is milk coming from Monaghan, and I think there is very little supervision over that milk.

1316. Mr. O'BRIEN.—I suppose you are not a philanthropist?—I cannot afford it in the first place.

1317. You are making this business pay?—Yes.

1318. It seems to me that you are a philanthropist compared with the dairy-keepers of Dublin. They charge more for their milk than you do, and some of them complain that they are being driven out of the trade?—This is the first season in my time that 3½d. a quart was charged for milk in Belfast. It has been a most exceptional season in the North.

1319. You do not feed your animals on any green crops—silage?—There is no silo. The people were against it, because they said they could not bear the smell of it.

The Commission then adjourned at 5.10 p.m. until the following morning.

NINETEENTH DAY.—THURSDAY, 15TH FEBRUARY, 1912.

The Commissioners resumed their sittings in the City Hall, Belfast, at 11 a.m.

Present:—P. J. O'NEILL, Esq. (Chairman); LADY EVERARD; MISS MARGARET MCNEILL; SIR STEWART WOODHOUSE, M.D.; GEORGE A. MOORHEAD, Esq., F.R.C.S.; ALEC. G. WILSON, Esq.; and DERMOD O'BRIEN, Esq.

S. W. STRANGE, Esq., Secretary.

DR. EDWARD BELL PRESIDING

7622. The CHAIRMAN.—You are a member of the medical profession?—Yes.

7623. And you have experience of the manner in which the infant population is catered for in the City of Belfast?—Yes.

7624. Do you hold any public appointments?—No. 7625. But you have been looking after the children that are under the charge and control of the Babies' Club?—Yes, under the Women's National Health Association.

7626. How long has that Club been established?—Four years.

7627. Is it in a working-class district?—Yes.

7628. Would you be good enough to give a history of the work that has been done by that Club so long as you have been identified with it?—We have three Clubs—one in Denis-street, one in York-street, and one in Newtownards-road. There were 5,172 attendances at the Club in Denis-street for the year; in Newtownards-road Club, 2,036; and in York-street Club, 1,779; total number of attendances at these Clubs for year ending 30th September last, 8,986. I sit at the Denis-street Club, and sometimes the York-street Club.

7629. With what object were these Clubs started?—To reduce infantile mortality.

7630. Has any provision been made to secure that a pure milk supply is available for the babies?—Yes, when we started the Club we found that the milk was so bad and deficient in fat that we had to get a milk supply. We began in March, 1908, to give fresh milk in some cases. Afterwards we paid the difference between the price of good milk and bad milk, and for some time past—since June twelvemonths—we pay half and the mothers pay the other half. Last year the amount expended was £188 13s. 4d., and of that we paid £60 10s. 8d., and the number of babies who received milk was six hundred and twenty-five.

7631. Have you any institution in Belfast such as the Strickland Depot in Dublin?—No. The milk is supplied in sealed bottles in the homes of the children.

7632. Have you any arrangement as to the treatment of the milk—is it pasteurised or otherwise treated?—No; pure milk untreated.

7633. And the security for cleanliness is that it is sent round in sealed bottles?—Yes, and the dairies are inspected.

7634. What price do you pay for the milk?—4d. a quart.

7635. All the year round?—Yes.

7636. With regard to the treatment that children receive generally, are you of opinion that they get a sufficient quantity of milk food in Belfast?—There is no scarcity of milk.

7637. Do you believe that those in charge realise the advantage of bringing up their children on a milk diet?—I can say that of the women in the Club.

7638. But you have no experience yourself?—I have a general practice, but it is not in the poorer districts. In some of the districts I think they get very poor milk—milk deficient in fat.

7639. Do the mothers appreciate the help they are getting from this benevolent society?—I believe they do.

7640. Do you find that there is an increasing number applying for the assistance you give?—Yes, about one thousand extra since last year. We would like more clubs.

7641. Would you like a multiplication of the clubs in other districts?—Yes.

7642. The deficit in the Club funds is made up out of the funds of the Women's National Health Association?—No; we have a special milk fund.

7643. Is that subscribed to generally?—The Sub-Committee of the Infantile Mortality section make special efforts to get these funds.

7644. And up to the present you have been able to raise sufficient money in order to give the assistance necessary to the mothers of infants?—Yes.

7645. You have not been, for want of funds, obliged to withdraw the giving of this milk supply at a reduced rate?—No.

7646. Do you think that it would be a judicious expenditure of public funds to contribute for a similar purpose?—Yes, to pay half. I believe in that.

7647. You believe that it would not be possible to have the children properly fed unless assistance was given to the mothers to provide milk?—In many cases they would require it.

7648. You do not give the milk cheaper to one than to another?—We do in some cases. If the doctor orders, a mother can get a quart of milk for a penny.

7649. Where the poverty is acute?—Where the baby requires the milk and the parents could not pay.

7650. Do you find that satisfactory progress is made by the children fed on the milk provided by your Club?—Yes. The nurse of the Babies' Club is here and will give evidence. She has the figures with regard to the progress.

7651. Have you any experience, or have you learned from the mothers, whether many children, apart from the babies, get any milk food?—They get very little milk.

7652. Is that because of the poverty of the parents or want of appreciation on the part of the mothers to provide this food for them?—I think they really know the milk is so poor that it is not worth the money.

7653. You think they know the milk is so inferior that they do not think it worth while to invest in it?—Yes.

7654. I was rather curious to know whether or not it was recognised that the milk purveyed in the working class districts was sent from one dairy exclusively, because we have had some rather convincing evidence that the standard of milk produced by some cow-keepers is, to say the least of it, not very high; and I wanted to know whether this milk was purveyed amongst the working classes and sold to them?—I think they get poor milk in the back streets. 7655. What price do they pay for it?—3d. a quart, and if they buy in small quantities they pay at the rate of 4d. a quart for it.

7656. Do you visit the homes of these babies in order to see what condition they are kept in by their mothers?—Yes, occasionally. Every week the mothers sent bring up the babies to the Club to be weighed. The mother will not get the milk otherwise. If she stops every three times we stop the milk supply, and we find that that has a wholesome influence in inducing her to come.

7657. How many have been disqualified for regular attendance?—Very few.

7658. That goes to show that your work is educational?—Yes, it is really educational. We had to give the milk. It was started for educational purposes alone, but we found it necessary to give the milk.

7659. So far, you have had no difficulty in providing a sufficient amount of money to enable you to carry on your work?—No.

7660. But you are not dealing with the entire area that needs assistance, and it requires a fresh effort every year to get up the fund?—Yes.

7601. There are other districts in which you would desire to extend the sphere of your work if funds permitted?—Yes.

7602. And you are of opinion that it would be a proper expenditure of public funds to contribute to such work as you are engaged in?—Yes, strongly.

7603. Is it your opinion that many of the infanticide mothers that are carrying off such a large percentage of the juvenile population may be traced to infested milk?—That is one of the causes.

7604. Do you think that it is likely to produce debilitated constitutions in the children brought up on it?—Yes.

7605. I presume the people with whom you deal have got very little idea of the proper method of preserving milk from contamination?—Yes, very little, indeed. We try to teach them the dangers of milk contamination.

7606. You give them a sort of demonstration each time they come—they learn everything it is possible to teach them in regard to the care of children?—Yes, we give them individual instruction, and they are very grateful for it.

7607. Is there any other aspect of the question that you would like to draw attention to, Dr. Bell?—The deficiency of fat in the milk. The fat is taken from the milk, I believe.

7608. Lady EVELAND.—You say that the Club pays a halfpenny for each quart that you give away?—One penny, and the mother a penny, since June, almost two years ago.

7609. Do the mothers appreciate what the Club is doing?—I think they do.

7610. When the babies are reared, do you find the mothers trying to buy the good milk themselves?—Yes, the Club mothers.

7611. Is it not possible that they could procure good milk if they went further afield?—They have not time to go further afield, and in some of these streets there are no milk carts passing through.

7612. And there is no milk depot near them?—No.

7613. Do you have the Babes' Club as a centre, and do you work round it?—Yes, if a woman comes from another district we say, "you ought to attend the Newtownards Club."

7614. Are the three Clubs under you?—No, there is another dealer.

7615. You are over the York-street Club?—I am going to be; but we were banned out there.

7616. Do some of the women work?—Yes.

7617. And what do they do with the babies?—Some of them have them cured at home, and some give them to a neighbour, and some send them to a Crèche.

7618. You have crèches?—There are none in Belfast.

7619. Do you receive any grant from the Belfast Corporation?—No.

7620. You receive no public money?—No.

7621. And do you think it would be a proper way for public money to be spent?—I do; no better way.

7622. Because it is rearing up the future men and women of Belfast?—Yes.

7623. The CHAIRMAN.—Have you any experience of the use of condensed milk by these people?—It is over a year since I heard of condensed milk in the Club. This is a photograph of a typical baby who never got any cream. Any mother can tell you what is wrong with that baby.

7624. The educational effort has been such that you believe you have driven out the trade in condensed milk, so far as the people with whom you come in contact are concerned?—Yes, and of course they tell their neighbours. I think the educational advantage is good.

7625. Mr. WILSON.—Have you any actual figures as regards the deficiency of fat in milk?—The nurse here. We have tested milk for almost two years—good milk and bad milk.

7626. Would you develop your plan of reform for the Commission? You have some experience of the problem in the city of Belfast—what would you wish to see adopted?—I would like guaranteed milk. I would like that a poor woman, who did not know good milk from bad, could be sure of getting good milk.

7627. Any method of guarantee would unquestionably put up the price?—Above what?

7628. Fourpence a quart?—I think you would get good milk for fourpence. I do not see why they could not get good milk for threepence.

7629. In the city?—Yes. For extra good milk you could pay fourpence a quart. I believe milk is worth fourpence a quart.

7630. But are the people that we are concerned with in a position to pay fourpence a quart?—You would wonder at the price they pay for infant food—very much more expensive than milk at fivepence a quart. They often spend 1s. 6d. a week for an infant food, and they could have it for 1s. 3d. at the fourpence a quart rate.

7631. Lady EVELAND.—You say even the bad milk is sold at fourpence a quart?—No, the pure milk.

7632. Mr. WILSON.—With regard to the street which the milk-cart never goes down, some vendors do not like to sell small quantities, and it has been suggested that voluntary effort might organise a number of these small individual consumers, in such a way that it would pay a dairymaid to call at a whole street of houses. The Women's National Health Association might take a street, and get the majority of people in that street to go to one particular dairymaid, and have one cart getting in to supply the street. Would you consider that a feasible effort for a voluntary society?—You do not get voluntary work done well. I am in favour of paying people for work. I find it very hard to organise voluntary work.

7633. Lady EVELAND.—I think what Mr. Wilson means is what is being done in several districts in Ireland; but it is done as a business proposition. Ladies have joined, and have got a supply of milk, and have taken a house, and the profit on the sale of the milk pays the rent and the salary of the caretaker. That scheme is already in operation in several parts of Ireland, and is doing very good work?—I am sure it would be very good.

Mr. WILSON.—It seems to me to be a weak point in the scheme in Belfast that it is dependent on charity, so to speak, whereas in the case of the others we have had before us they were more on a commercial basis.

Lady EVELAND.—At Corkow they pay fourpence a gallon for the milk in winter, and at Nax fourpence a gallon, and they have opened depots for providing the poor with milk.

Mr. O'BRIEN.—The milk is sold from Lord Rose's dairy in Brix to the workpeople at a penny a pint.

Lady EVELAND.—At Nax they buy it at threepence a gallon in winter and eightpence a gallon in summer.

7634. Mr. WILSON.—My point is that if this demand were once organised in this way—a whole street of workmen's houses all taking milk from the one cart—a dairymaid would find it profitable to supply the milk, and once that scheme was organised it would not have to be done again?—Would you be able to do it all over Belfast?

7635. Yes, street by street?—It would be very good if you could organise it.

7636. It would not require a permanent organisation?—I am sure your system would be very good.

7637. You would be in favour of a scheme of that kind being attempted?—Yes. I think milk should be sold in bottles, so that it should not get the dirt of the shop or the street.

7638. Miss McNEIL.—You would not get milk at threepence a quart sold in bottles?—What is the expense—washing the bottles?

7639. Bookages?—Yes.

7640. And the expense of delivery is greater?—Not if the bottles were in the shop.

7641. Handling is a much more costly thing; it adds to the expense of production immensely. You could not get it at fourpence a quart in bottles?—Some of the poorer houses have not a jug. Some of them have not a stool.

7642. Lady EVELAND.—Why is that, because I think the evidence we have had before us in Belfast seems to show that the wages are very good?

Mr. WILSON.—The house where there is no furniture and stool and jug, is not that commonly the house of a family where there are some suspicious of drink?—The nurse can answer that question; but we have some houses.

7643. We have had a good deal of evidence, especially from Professor Thomson, with regard to the food value, for children that are well grown—anything after two or three years—of separated milk. What is your opinion of that—is it used?—No, I do not think it is in Belfast. I only know one place.

7704. Do you believe in it?—Yes, if you can supply the fat. I think cream is cheaper.

7705. Professor Thompson was in favour of separated milk being more largely used than at the present time?—For grown children, but not for growing children.

7706. Mr. O'BRIEN.—Professor Thompson made a particular point that for mothers when nursing their infants, oatmeal porridge and separated milk was an excellent food, quite as good as whole milk and oatmeal?—It is very good, but I do not think the milk of the mother would be so good in fat as that case, and I should like the mother's milk to be rich in fat.

7707. I gathered from his evidence that the oatmeal part of it built up the frame, and that the mother would supply the fat out of her own constitution?—I do not believe in taking it out of her own constitution. I cannot take separated milk with porridge. I prefer buttermilk.

7708. Mr. WILSON.—Buttermilk is hard to obtain?—Yes, it is dear.

7709. Is the amount of voluntary effort to be obtained in Belfast on the increase or decrease? for instance, as regards the work of the Women's National Health Association?—It is hard to get voluntary help. I shame my own patients into working. Until you make women citizens I do not see why you should expect them to work.

7710. Dr. MOOREHEAD.—I am anxious about the distribution of milk from the Babies' Club. Is your Club a distributing centre?—No.

7711. How do you manage to distribute this milk?—The milkman leaves the bottle at the baby's home.

7712. You get your milk from various dairies?—No, from one dairy.

7713. You have a contract with that dairy for so much milk at such a price?—Yes.

7714. And has the contractor to deliver that milk in bottles?—Yes.

7715. How do these people get it?—do you give a ticket?—We give the milkman the name and address of the mother, and he leaves the bottle and gets a penny, and we give the other penny.

7716. Is it only the mothers that join your Club that get the milk?—Yes, and who attend every week.

7717. What percentage of fat do you recognise as a standard for milk?—Four per cent.

7718. Is not that rather light?—Yes, but I do not think it is too high.

7719. Can you get four per cent.?—Yes; but pure milk is never under four per cent. I would complain of it if it were under four per cent.

7720. How is that fat estimated?—I measure in degrees of cream. I got some samples tested by the county analyst and the milk contained 10 per cent. of cream, and the analyst said that that was four per cent. of fat.

7721. Mr. WILSON.—I do not think these figures are accurate?—I have my own glass and I measure it, and I sent a sample to the analyst and he informed me that it contained four per cent. of fat.

7722. Miss McNEILL.—We usually get in Dublin, where we are supplying the poor, about 3.4 or 3.5 per cent. of fat?—In my own private practice I always give babies more cream than that.

7723. Dr. MOOREHEAD.—Have you noticed a diminution in scabious diseases or rickets, have you had cases of rickets?—Not in the Babies' Club.

7724. Would you say that there is a decided improvement in the matter of tuberculous and rickets?—Yes, in the Babies' Clubs.

7725. Mr. O'BRIEN.—What age are these babies that are eligible for the club?—Under a year old; but we do not stick too tightly to that condition.

7726. What is the quantity of milk given to a baby?—Well, a pint will do to three months or four months, and a quart afterwards. We have not been able to give more than that.

7727. That is for babies up to a year old?—Yes.

7728. Do you know if the family gets milk for the older children?—I cannot answer that.

7729. How do you guard against the quart of milk which is got for the child being distributed amongst the other children?—We weigh the baby next week, and if it does not gain in weight we say, "You did not get the quart of milk to the child."

7730. You don't know from your own experience as to what quantity of milk per head children get?—I cannot answer for children in these houses.

7731. You say that the quality of the milk before you started this Club was so bad that you had to get special milk?—Yes, and at present it is bad.

7732. Where does that bad milk come from, because I should have said from the evidence that we have had that the standard of milk in Belfast was rather high than elsewhere; that there was a good supply of rather a high quality of milk?—No, not in the poorer districts.

7733. Some of the people giving evidence said that the milk was up to 4 per cent.?—We often got only 1.5 and 2.5 per cent. of fat.

7734. Do you prosecute?—We have no power to prosecute. We only show the mother the bad value she is getting for her money.

7735. You would not have power to send a sample to the Medical Officer of Health and he could prosecute, could he?—Yes, I foresee.

7736. Don't you do that?—No. We only tell the mothers how bad the milk is and advise them to get better.

7737. It does not seem to me to be an efficient way of making it better?—We tell the mother about the quality of the milk. They don't get heavy penalties in the milk prosecutions in Belfast.

7738. Do you think the punishment is not sufficiently great?—I think the milk standard is too low generally.

7739. Where you get milk that is very decidedly below the standard—in cases where you get it at 1.5, don't you think that in that case it would be best to refer at once to the Public Health Committee, and see whether you could not get that person prosecuted?—I have often told the milk inspector.

7740. Do you think that the fines imposed on dairies who supply milk thus deficient in fat would be so small that it would not affect him?—I think the legal standard is altogether too low. I would not take milk at the legal standard. People know that they can sell such milk, and "doctor" it so that it will be only three per cent.

7741. I am talking of milk which is under three per cent., and which is liable to prosecution?—Yes.

7742. Do you think that the reason there is that supply of milk is because the punishment is not great enough to deter it; or why is it that the vendors do not fear prosecution?—I don't know. I think the standard is too low. I think it should be higher.

7743. Mr. WILSON.—It is not a matter of controversy, but of fact, that there are a number of cows in the country that never go above three per cent.?—I think they should get rid of these cows. I never found such a cow.

7744. There are lots of them?—You should get rid of them. These cows should be killed. I think there are very few of such cows.

7745. There are many of them. We have had considerable evidence on that point?—Our cows at home always gave far more than that. My father was Clerk of the Union in Newry, and I saw the milk tested there, and in the workhouse they never take the milk if the cream is below ten per cent.

7746. Dr. MOOREHEAD.—Ten degrees of cream is equal to 3.5 of fat.

Mr. WILSON.—If you were fixing the legal standard, would you take the low-grade cows into consideration?—You should get rid of the low grade cows.

7747. Dr. MOOREHEAD.—What is the standard in human milk of fat?—From two per cent. to seven per cent.

7748. Of a healthy young woman?—We have taken samples of mother's milk and they are generally about five per cent.

7749. That is very high?—It is good.

7750. I have some statistics here of Parkes and Kenwood, and they give the average at 5.2 per cent. In one case, that of a girl of 18 years, the percentage is 3.5, and in another case the percentage is 3.99, so that they are both under four per cent.?—I would advise that mother to take fat-producing food. It is hard to get a sample of mother's milk.

7751. These samples have been taken?—Yes, but not under natural conditions. You must exhaust it with a pump.

7752. That is so. Why give a higher standard to the cow's milk than in the woman's own milk?—You don't give the baby cow's milk. You water it and you reduce the fat to half.

1763. Is your ideal standard of milk for a child not less than four per cent. of fat?—I would like four per cent. I would really like more. In my own private practice I always advise giving all the cream of a quart of good milk in the first four months, and all the cream of two quarts from four months on.

1764. It is an error on the right side, if it is an error?—Although I don't like a fat baby. The poor people require more fat; they have not sufficient clothes.

1765. Sir STEWART WOODROUSE.—About what proportion of mothers nurse their own children?—A very large proportion, because we discourage bottle-feeding.

1766. Would you say that three-fourths of them nurse their own children?—I would say so. Irish mothers are particularly good in that respect.

1767. By the poor quality of milk which is received before the Society was established, do you mean that the milk was dirty or watered?—I believe the milk was robbed of its fat.

1768. Have you a limit of wage in estimating the people who have a right to charity?—No, we decide each case on its merits. It depends on the number of babies in the house. We have hardly ever given the milk to the women with only one baby. The more visits the babies in their homes. The giving of the milk will depend more on the health of the baby. We want the baby to live and to lessen infantile mortality.

1769. You hope that those who can afford to buy the milk will continue to do so?—Yes, we have found that so. They see how well the baby has done on the milk they get in the Club, and they have learned that good milk is cheaper than poor milk.

1770. You satisfy yourself that the dairy that supplies the milk is a dairy run under good hygienic conditions?—Yes.

1771. The bottles are thoroughly washed?—Yes.

1772. Do you use fresh corks in these bottles?—Yes.

1773. Do you attribute the summer diarrhoea in children to any large extent to the quality of the milk?—Yes, and to the flies and dirt. We blame it mostly on the flies. We tell the people to keep milk in bottles rather than in open vessels in their homes.

1774. If the standard of milk is low, is it not all the more reason to bring pressure to bear upon the Sanitary Authority to stimulate their zeal in analysing milk and keeping up the standard?—Yes. Only lately we have taken samples all over the town.

1775. Have they been reported to the official authorities?—No.

1776. Don't you think that it would be a good plan?—We will tell them. Lately the nurse took a lot of samples and we sent them to the analyst.

NURSE BRYANT'S EXAMINED.

1781. The CHAIRMAN.—You assist Dr. Elizabeth Bell in the duties connected with the Babies' Club?—I do, sir. I attend the Club and visit the babies in their homes.

1782. With regard to the condition of these women, I suppose you find a wide variety as to comfort and cleanliness?—Yes, indeed.

1783. Some are extremely poor?—Yes. There is extreme poverty in many cases.

1784. Is it genuine poverty or poverty arising from extravagant habits?—Very often because of the men and intemperate habits.

1785. Is there more poverty arising from that cause than from want of employment?—In some cases a low rate of wages renders them extremely poor.

1786. Even though in constant employment the rates are so low that their homes are very poor?—Yes, considering that a man has to support himself and his wife and five children on 15s. a week.

1787. What do they pay for house rent?—They would get no house under 2s. 6d. or 2s. 9d. a week. That would be a poor class of house, and they would have to pay 3s. 6d. as a rule.

1788. That is a tremendous amount to pay with wages such as you have indicated?—Yes.

1789. Do you find that the women have a proper and intelligent knowledge of the way in which they should treat their babies when they come under your instruction?—In some cases they have and in others they have not.

1790. You find them tractable and desirous of acquiring a proper knowledge?—Yes, very desirous, and

1763. The CHAIRMAN.—Have the official authorities been made aware of it?—They know.

1764. They have been rather chary in instituting prosecutions in Belfast, because they had great difficulty in getting convictions until it could be conclusively proved that the milk was tampered with. That was the evidence that was offered to us, and it was stated that the decisions of the magistrates were such that the Public Health Committee did not feel justified in instituting prosecutions unless the milk is below 2.50 per cent. of fat?—The judges are not mothers.

1765. Do you think it would be more advisable to institute prosecutions in all cases where the legal standard was not reached, and let the onus lie with the Court of refusing to convict under circumstances such as you have told us of—would you think it wise that the Public Health Committee in Belfast should institute prosecutions, even although there would be a doubt as to the decision, in order to show that milk of a particularly poor quality was vended to the poorer classes?—I think that it would be of great educational value.

1770. I agree, but the other policy has commended itself to the Public Health Committee here. You don't share that view?—I do not.

1771. Miss McNEILL.—Have you many cases of mothers going to the Club with two babies?—Yes.

1772. What do you find is the effect on the second baby?—It improves in some cases and not in others.

1773. Did you find any great percentage of cases in which there was an improvement?—I find mothers are very anxious for their babies to do well. The weekly visit to the Club is a great help.

1774. A great many of the mothers are women who go out to work?—Not a large proportion. There are some. That baby has to come to the Club, and is brought by a little girl, so we know whether the mother is working or not.

1775. About how soon would they begin to work?—Some of them go out very soon. We tried to encourage them to stay at home longer.

1776. Would they go out in two months?—Some are forced out sooner when their husbands are not working.

1777. Have you many who would be forced to go to work in a month?—I don't know. Some of the men are lazy and won't take work.

1778. Mr. WINSON.—Do they still use the long tube bottle?—No; they dare not come to the Club a second time with it.

1779. Do you see it used?—Yes, I see it in the home.

1780. Would you approve of making its use illegal?—Yes.

making very painstaking efforts to follow out the directions they receive.

1791. Do you find them disinclined to carry out the instruction they receive?—I have very little trouble. In some cases, of course, they would absolutely refuse.

1792. To receive any instruction?—They would object to the help.

1793. You make it a condition that they must profit by the instruction in order to receive the benefit you give?—Yes.

1794. What quantity of milk would be taken into the homes of these people for the household generally, independent of the infants?—A very small portion for the general use of the home. They use condensed milk, but for the baby the mother would go any length for good milk.

1795. The quantity of milk used for the household is small?—Yes. That depends on the wages.

1796. Do you think they really appreciate the value of milk as a food for children, independent of infants?—Not as much as I would like.

1797. In the use of condensed milk at all general?—It is very general in the household, I find.

1798. Why do they elect to use condensed milk. It is not more economical than ordinary fresh milk?—Yes, it is, and they tell me, and, of course, I have the evidence of my own eyes, that the quality of the milk in the shops does not justify them in paying the price for it. They don't get value for their money.

1799. They are actually in rebellion against the quality of milk supplied by the ordinary purveyor, apart from the milk given by the Club?—That is so.

1800. Is that a well-founded belief—that the milk is abominably poor?—I find it is so in the slum areas.

7821. Do you think it is produced under conditions that are cleanly and hygienic, judging from its appearance?—Sometimes it is anything but clean, and the quality is very poor in the slums—three degrees, five degrees, and four degrees of cream—and the analysis of one sample showed that 484 parts of its fat had been abstracted; and we had also some of 334 and 26 per cent. deficiency in fat, and 8.48 per cent. of added water. The analyst said that all these samples had been tampered with to the extent of putting skim milk in to the extent of one-half and one-third.

7822. Did you report these cases to the Public Health Committee?—No. I often spoke to the City authority, and they have such difficulties in the way of securing convictions that the game is hardly worth the candle.

7823. That is the view that was put before the Commissioners by them; but at the same time it seems to me that the policy they have elected to follow is rather conducive to the continuous supply of extremely poor milk?—Yes.

7824. Because people realise that milk up to a certain standard, which is below the legal standard, will not subject them to a prosecution, and consequently they vend this milk amongst the poor people and escape the odium arising from a prosecution?—That is so.

7825. Do you think that is a wise policy?—It tends to a deterioration in those children who survive infancy.

7826. I quite believe that; but I am talking of the policy of the Public Health Committee. Do you think it wise to adopt this policy on account of the difficulties of securing convictions. Would it not be much better to prosecute in every case?—Yes. Public opinion would then go against the vendor.

7827. And public opinion would become hostile with the magisterial authority in not co-operating with the Public Health Committee?—Decidedly so.

7828. Is dried milk used by the poor?—Not that I know of.

7829. Is it sold at all in Belfast?—Yes, I think you might get it in some of the chemists' shops.

7830. But it is not used by the humbler classes as a food for their children?—No; I have never met a single case where it was used.

7831. Is the condensed milk used as a liquid food or merely for the purpose of colouring tea and coffee?—Colouring tea. They sometimes make rice or other milk foods with it.

7832. And when reduced to a fluid form, is it really cheaper than milk would be at fourpence a quart?—I have no practical experience of that. I cannot answer that question.

7833. Still the idea seems to prevail in the minds of those responsible for the household expense that it is cheaper?—Yes.

7834. And I suppose it would be hard to dissuade their minds of that idea?—Yes. I find people in the slums will go any length for pure milk.

7835. For a baby?—Yes. I have heard of one milkman who has the reputation of supplying very good milk, and a mother told me about it. I saw the mother in her house and asked her about the milk she got from this vendor. She had to go almost half a mile for it. I asked for a pint of the milk, and had it tested, and found that it registered fourteen degrees of cream.

7836. She had realised, at all events, that she was getting good value?—Yes, and she had to go half a mile for it. I went to this dairyman's place myself, and there was quite a crowd of women about the shop.

7837. They also appreciated the value of good milk?—Yes.

7838. That is a gratifying fact?—Yes.

7839. What was this milk sold at?—Fourpence a quart.

7840. And it seemed to be milk that was properly creamed and clean?—Yes, it did not show any sediment of any kind, and it contained fourteen degrees of cream.

7841. Miss McNeill.—Do you know if that specimen was taken in the morning or in the evening?—In the morning.

7842. The CHAIRMAN.—Do you believe that there is a still further field for the work of your Club in this city?—Yes.

7843. The deposits that you have established at the present time are only dealing with the necessities of the particular areas in which they are situated?—Yes.

7844. And if funds were available it would be possible to develop your work to a much larger extent in other districts?—Yes.

7845. In which, perhaps, the need is almost as great?—Yes, equally pressing. In the vicinity of factories and working centres.

7846. Do you think that it would be proper to devote public funds to support such philanthropic work as you have undertaken here?—Undoubtedly I would.

7847. Lady Eversham.—Mr. Wilson asked a question about establishing milk depots. Dr. Bell was asked a question whether the would be in favour of milk depots being started in Belfast, as in various other parts of Ireland, under the Women's National Health Association. Supposing there was a depot started, there would be so many gallons of good milk delivered to it daily. It would be pure milk from a reliable source?—That I think, would be a very good scheme.

7848. It has been done in other towns, and is doing remarkably well?—I would consider it a very good scheme indeed. There are a number of milkshops where they sell sticks and coal buckets.

7849. Mr. Wilson.—Would you say that this particular class of shop should be put out of business?—Their milk should be put out of business.

7850. What is your opinion as to the quantity of milk sold in the working-class areas in Belfast—has the demand risen or lessened?—I cannot answer that. I only deal with the babies that I come into contact with.

7851. Indirectly one would have thought that the result of your work would have increased the demand?—That would be a dairyman's question. I order the milk for the baby. I have in some photographs of babies who have been assisted by our Club.

7852. Your evidence suggests a question to me—would you consider it one of the most valuable things that the Health Association could do in this town, to collect a series of samples of milk in the poorer districts and have them analysed, and publish the results?—That would arouse public interest.

7853. You say that you cannot get the authorities to carry out a sufficient number of prosecutions. You maintain that the result is bad to the public health. Would it not come within the scope of your Association to arouse public opinion by publishing an analysis of that kind?—You will find difficulties in your way to get samples tested by the city analyst. I would have to look up the inspectors.

7854. If you could get any capable doctor to do the testing—some professional man connected with the Association who would do it for nothing?—I am not sure.

7855. Would it not be within the scope of the Health Association to arouse public opinion by publishing analyses of the milk, which you say is persistently bad?—Yes. The babies, when they get good milk, have gained from four to eight ounces a week in weight.

7856. Has there been any change in the condition of the milk since the introduction of the Bacteriometer that was promulgated in 1909?—I am only dealing with the present day samples, and I don't know whether they were better or worse five or six years ago.

7857. Dr. McNeill.—Do you consider fourpence a quart a high price?—I think, considering the expenses, that fourpence would not be a high price, if the people got reliable milk. The lowest price even for the worst milk in the winter is threepence halfpenny for the quart, or twopence for the pint.

7858. You have given us the reason why condensed milk has taken the place of ordinary milk is on account of the price. If good milk were cheaper would it not knock out the condensed milk?—Yes.

7859. Brought down to threepence a quart, perhaps?—Yes.

7860. Have you any supervision over the creches?—No more than the ordinary visitor.

7861. How many of them are in the city?—I think there are three.

7862. Are they under the management of the Women's National Health Association?—No.

7863. They are independently managed?—Yes.

7864. Are they largely availed of?—Fairly well.

7865. Do you look upon them as being very successful?—I am not in a position to state that. My private opinion might not be favourable.

7866. You don't know how they are managed?—No.

7867. Mr. O'Hare.—Do you go to the homes where the babies are?—I visit about sixty babies at their

homes every week for the Women's National Health Association, and I am from one hundred and twenty to one hundred and fifty weekly at the Clubs.

7868. When you go to the homes do you see other children in the house?—Yes.

7869. Do you know at all what quantity of milk they get—do they get a sufficient supply?—Not, in my opinion, in the homes of the very poor.

7870. Do you think that they get half a pint of pure milk per head for children under ten years?—I hardly dare say that they would get that much.

7871. When do they begin to reduce the quantity of milk they give to children?—After they are a year old.

7872. Supposing there was a family of an infant and three other children, with, perhaps, fifteen or sixteen months between them—how much milk do you think the other children would get. Do you think that for the other three children they would take as a quart a day?—I don't think they would.

7873. That is to say, they would take one quart for the infant with the help of your Association?—They would not take a quart for the infant, because we supply that milk.

7874. They pay half the price of the milk?—Yes.

7875. And you pay the other half?—Yes.

7876. That would go to the infant. What I want to get at is whether the other three children would get another quart of milk—that is to say, two quarts of milk would be brought into that house?—In a labourer's house that would be an impossibility. The wages would not permit it.

7877. How much a quart are they paying?—Three pence halfpenny.

7878. And then they pay one penny for the quart you supply?—A penny for the pint. In extreme cases the doctor has power to order a quart for a penny.

7879. In a general way, how much do they pay for the quart of milk that you supply?—In some cases a penny and in some cases twopence.

7880. Supposing one put it at threehalfpence, that would be fivepence for the two quarts going into that house, and that is for the feeding of four small children per day—that would be, say, 3/- a week for the milk for the children, and you think that a labourer earning 15/- a week would find that too heavy?—I seldom find that they spend so much money on milk after the child has gone a year.

7881. That is a good deal a matter of education. I am talking now of the possibility. Supposing they were sufficiently educated as to the food value of milk, and recognised the importance of giving milk to every child up to the age of fourteen or fifteen years, and they asked it, do you think?—I don't think they would afford to give that much.

7882. If the labourer had four children, and the price of the milk cost 3/- a week, and the labourer gets 15/- a week, that would be 12/- over; and he has to pay, perhaps, 3/- for the house; that would leave 9/-. Could a labourer, under these circumstances, afford to pay 3/- a week for milk?—He could not afford that amount.

7883. In some budgets for the keeping of working-class families I notice that there is nothing left over for clothes?—It is hard to calculate the quantity of milk going into these little houses. They buy it in pennyworths and in halfpennyworths.

7884. At the price of milk in Belfast, supposing they knew the food value of it, and wished to give as much milk as possible, do you not think they could afford to get a sufficient supply?—They could not.

7885. And that anything that would put up the price of milk would affect them?—Yes.

7886. If they could get a milk food cheaper than the present milk food it would help them?—Yes.

7887. For instance, do they use separated milk?—Not very much.

7888. Do you know the price of separated milk?—A penny-farthing and threehalfpence a quart.

7889. Is that milk separated by centrifugal force?—Yes.

7890. Is it not skim milk?—No.

7891. That would be 5d. a gallon for separated milk?—Yes.

7892. Separated milk could be delivered in the streets of Belfast at 5d. four ounces is Antrim. Do you think that would be good value, if the people took separated milk to help the more grown children?—There are some people who get it, but I find there is not a great appreciation of it.

7893. Is there a prejudice against it because they think it has no food value?—Yes, and it is not pleasant to taste in some cases.

7894. Do you consider yourself that it has much food value—have you much experience of feeding on it?—I have none.

7895. And you have no opinion as to its food value?—No.

7896. The condensed milk that is used by these people is not whole milk as a rule?—No; machine skim milk.

7897. Is it generally labelled on the outside?—Yes.

7898. As separated milk?—As separated milk.

7899. Do you think they understand what separated milk is?—I don't think they consider in many cases.

7900. Because some other witnesses stated that the people don't understand, and that it would be better if they put condensed skim milk on the tin?—I think it would be a good idea.

7901. That, I suppose, is sold very cheaply?—A small tin costs 5d.

7902. And how much so-called milk do they make out of that?—I have no practical experience.

7903. They take a spoonful and add water to taste?—Yes.

7904. They take out a spoonful and mix it up without any reference as to what the food value would be—just from the appearance?—Yes.

7905. If it did not look blue it would be all right?—Yes.

7906. I suppose they would make the tin go a long way?—Yes.

7907. And I suppose they also like that milk because it does not go bad?—Yes, it does not go bad.

7908. The Chairman.—You have some people under your observation where the wages coming into the house would be from 25s. to 30s. a week, owing to members of the household being engaged in work—would these people buy milk for the growing children?—They would.

7909. And do they?—Yes.

7910. What quantity would they take into their house? I am talking independently of the baby portion of the family.—Well, I find it is their general rule to get a quart of milk in the morning for a wage of that height and a pint at night, or perhaps a quart.

7911. So that would indicate that they do appreciate the value of milk as a food, and where they buy less it is because of financial inability to buy?—Yes.

7912. Sir STEWART WOODROFFE.—Do you consider that there has been an educational effect produced on the women in the neighbourhood of the Babies' Clubs?—Yes.

7913. Do you find they take a greater interest?—Yes, in the life of the baby.

7914. And do they, when they talk amongst their neighbours, discuss the value of milk as a food?—They do, to a certain extent.

7915. Do you think that they are more critical towards milk now than they were twelve months ago?—Yes, because they draw my attention to poor milk. Some of the men also said that the milk they were getting was no good.

7916. Is that feeling increasing?—Yes, very much.

7917. Miss McNEIL.—Practically all the witnesses that have come before the Commission have been in favour of licensing all milk vendors. Do you think that some of these undesirable milk vendors would be crushed out if there was a licensing system?—I think that it would tend in that direction. If they get heavy penalties and their licences were taken from them, of course others would not be likely to run the same risk. At present they can sin with impunity towards the working classes.

7918. What I want to know is, if there was a certain amount of fines in imposing penalties for adulteration, do you think that licensing would prevent the worst effects of that adulteration?—I should think it would help. In the slum districts and congested areas I find wheeled milk, and in the city and suburbs I find milk with twelve degrees, and as high as sixteen degrees of cream.

7919. Don't you think that people will say that there are other factors that come into the case of the babies attending the Babies' Clubs than the condition of the milk—it is not merely the change of milk?—Yes.

7920. You will find babies having excellent milk who are not thriving?—That is so, but I am talking of cases that had bad and insufficient milk, and then the evidence of the babies themselves.

7960. You had other factors, too, there was greater care of the babies?—In some cases.

7962. You know cases where it was the change in the milk that effected the improvement in the infants?—Yes. In the majority of the cases the only change was in the quality of the milk.

7963. The baby improved when the milk was changed?—Yes.

7964. With regard to the sale of separated milk for feeding, which has been recommended by some of the witnesses, do you think it separated milk was sold largely as food for older children, that it might lead to its use instead of whole milk in some cases for younger children?—I think it would.

7965. If you limit the sale of it to one particular class of milk-seller—if it was sold only in shops selling only separated milk, do you think it would be a beneficial thing to develop the use of it for older children?—Yes, but you would run the risk of nurses in a district round large factories arranging the separated milk for the babies.

Mr. JOHN A. THOMPSON, F.R.C.V.S., J.P., examined.

7910. The CHAIRMAN.—You are a member of the Veterinary profession?—Yes.

7911. And you hold an appointment as Veterinary Inspector under the Lurgan Urban District Council?—I do, and also the Rural Districts of Meira and Lurgan.

7912. Will you tell us exactly what provision is made by these Local Authorities for the enforcement of the provisions of the Dairies and Cow Sheds Order?—All the three Local Authorities, the Meira and Lurgan Rural Districts, and the Lurgan Urban District, have dairy inspectors.

7913. Who are not professional men?—No, and I supervised them.

7914. What number of cows would be kept in these districts over which you have jurisdiction?—About 1,600 cows. In Lurgan there are 297; in Meira Rural District a little over 800, and in Lurgan Rural District a little less than 800.

7915. Are you including the entire number of cows in the districts or the cows whose milk is sold for public use?—I am including the cows in the registered dairies only.

7916. As regards the habits of the people—the workers engaged in the dairy trade—do you think their habits?—I have a good deal of experience, and I think the people, generally speaking, are clean in their habits. Of course, there are exceptions.

7917. And the application of the provisions of the Order has tended to develop habits of cleanliness amongst them?—Yes, there is a very great improvement in the condition of the dairies, and in the condition of the milk vessels and in the condition of the people.

7918. Have prosecutions been instituted for breaches of the provisions of the Order?—Yes, particularly in the Urban District. The Urban District Council is very anxious, indeed, to carry out the Order well. Before the Order was instituted the dairies of Lurgan were kept in a very satisfactory condition, and the Authorities are most anxious to see that the regulations are properly carried out, and frequently institute prosecutions. I am sorry to say the Rural Authorities are not so anxious to push prosecutions.

7919. To what would you attribute that—are the members of the local Councils to whom you refer themselves engaged in the trade?—A few of them are engaged in the trade, but I think the Rural bodies being mostly composed of farmers, do not take the same interest in sanitary matters as members of an Urban District Council. In fact some of them think it is wholly unnecessary that there should be this supervision at all.

7920. Have you any reason to complain of want of co-operation on the part of the magisterial authorities when prosecutions are instituted?—No, I think the magisterial bench is anxious to inflict fines when they consider that the case has been properly proven. The only thing is, of course, sometimes there is a complaint that the fines imposed are too small.

7921. Are they commensurate, in your opinion, with the offences that are committed?—When the vendor is brought up a second time, I think the fines are not sufficiently increased.

7922. Have you any trouble with tuberculosis in

7906. Would you be in favour of such nurses children as feel being compelled to attend Babies' Clubs weekly?—Yes.

7907. You don't think that the ordinary Inspector can inspect them often enough to see that they are not subjected to any injurious treatment?—It is difficult. I found a baby getting colic water in a bottle, and the nurse giving the milk to her own child, so that if you get a supply of separated milk you will have to guard against that sort of thing. These people who nurse babies want to make as large a profit as they can, and they will stop at nothing, as we find too often to the detriment of babies, and to the total extinction of many.

7908. While you think separated milk might be suitable with other foods for older children, you think the risk is very great?—In that respect, yes.

7909. The CHAIRMAN.—There is no district, I take it, in Belfast where milk is not procurable for money?—Not in my experience. Milk of some quality or another is procurable.

your districts?—Not very much. In connection with the three Local Authorities, I have had occasion to recommend one cow with a tuberculous udder for slaughter.

7923. Do you make periodical inspection of the cows for clinical udder symptoms?—I do.

7924. And in your experience there was only one instance in which you discovered a tuberculous udder?—Yes.

7925. What happened to that particular cow?—I recommended that the test should be applied, and the ordinary re-action having taken place, the Local Authority had her destroyed, and paid compensation to the owner.

7926. And the Local Authority recognised that this was the proper thing to do in the interest of the public health?—Yes.

7927. With regard to the question of compensation, do you think it is a wise thing to limit it to £10?—In many cases I think it would be right to limit it to £10, and as far as I know under the Public Health Act there is no power to give more.

7928. As the Order stands at present there is no power to give more; but I want to know from you whether you think it would be a wise thing to allow the person awarding the compensation to give the fair market value of the animal that was slaughtered?—Yes.

7929. Do you think it would also lead to more frequent and prompt co-operation on the part of dairy owners, if they were satisfied that they would suffer no financial loss as a result of the slaughter of their animals?—I think that would induce the cow-keeper to report the animal himself.

7930. That is exactly the connection in which I asked the question. That would render the application of this portion of the Order less difficult than it is at the present time, because they would take immediate notice of any symptom that would lead to suspension and draw your attention to it?—Yes. I should say in connection with the Lurgan Urban District that the dairy owners are supposed to—in fact they must—report cases of sickness amongst their cows immediately to the Inspector.

7931. Is that condition fairly observed?—It is in the town. It does not obtain in the country.

7932. Is any milk sent to from your district into Belfast?—Only from two dairies, as far as I know.

7933. The Local Authority of Belfast seems to be rather desirous of having power to go out and inspect the source of their milk supply. Do you think that is a reasonable claim to make?—I do not think it is where the Local Authorities themselves have appointed Veterinary Inspectors. I know that the Dairy Inspector of Belfast, who is a layman, has visited my district on two or three occasions, and I do not think it is good enough for the Corporation of Belfast to send a layman to supervise the work of a Veterinary Surgeon.

7934. But the Public Health Committee have also a qualified Veterinary Surgeon in their service. Would you have any objection to his coming out to the district in which you have jurisdiction, to make an inspection in case of suspicion as to the milk supply?—I would have none.

7935. You think it is unreasonable to have the work of a professional man supervised by a layman?—Yes.

7936. I quite sympathise with that; but beyond that you see no great objection, and you do not think any hardship would be imposed thereby?—I think a much better plan would be that the thing should be dealt with by a Central Authority.

7937. I am leading up to that. You are quite aware that no matter how sound the *desires* may be on behalf of the different Authorities to enforce the regulations, there might be some want of uniformity in the manner in which the provisions are carried out unless there is some central control?—Yes, that is my own opinion.

7938. And you think it would be more desirable that there should be central control in order to secure uniformity of administration?—Yes, and I do not think we can have uniformity without central control.

7939. Are any cow herds in your district subjected to the tuberculin test?—Yes, a good many of them. I have subjected a good many of them to the test myself.

7940. Was that on the responsibility of the owners?—Yes.

7941. With regard to that test, what is your view, because we have had a good deal of conflicting evidence as to its reliability?—Well, as far as I am concerned, personally I think the test is a very reliable one when properly applied. I do not think it is reliable in the hands of every man.

7942. Not even every professional man?—Every professional man should be competent to apply it properly; but it is not reliable in the hands of laymen.

7943. Have you, in many instances, followed the application of this test to the slaughter of the animal to see whether or not the post mortem conditions revealed the same state as you had been led to believe by the result of the test?—In many cases I have.

7944. In what percentage of the cases did you find that the result was disappointing?—I should say about 2 per cent.

7945. Only 2 per cent?—Yes, about 2 per cent.

7946. We had an extraordinary example given to us yesterday by a gentleman who told us of four cows having been subjected to the test. Two of the cows passed and two were non-passers; but the two that did not react proved to be diseased, while the two that reacted proved to be sound beasts?—I think it is incredible. There is just this thing about the test. In advanced cases of tuberculosis—in cases in which it is not necessary to apply the test—the test fails. Where the test is not necessary to diagnose the disease, in that case the test fails sometimes; that is, in well-marked clinical cases.

7947. So that you would be quite prepared to find that an animal on slaughter would prove to have huge tuberculous lesions over the vital organs, which would not be a reactor to the test at all?—Yes, but I would also expect to see that the cow had wasted away very considerably.

7948. Is not this also a fact, that if the tuberculin test is applied, say, this week with a reaction, and if the same test is applied within a very limited period, say in eight or ten days, you might have no reaction?—That is so, to an extent.

7949. So that it complicates considerably any general deduction from the results of the test?—Yes, unfortunately it is not possible in every case to get results from a test of that kind. Many people who have cattle subject them to the test themselves if they find they are going to be tested.

7950. In order to secure that the result may be negative when the official test is being applied?—Yes.

7951. Have you known cases of that kind?—Yes, and I think the tuberculin serum should not be permitted to be used by others than professional men on that account.

7952. If the use of it were forbidden to non-professional people, it might not abate the difficulty with which we are confronted, because the professional man might be employed to apply the test, and he might do it, having no knowledge that the owner had an ulterior motive at the back of his mind?—Yes.

7953. Do you find that the dairy-keepers are willing to co-operate with you and others engaged in carrying out this Order generally?—The great majority of them are. They find it of advantage to themselves.

7954. Although at the beginning they might have been disinclined to comply with the Order, they now

recognise that the Order only provides for the carrying out of the business scientifically, and that it is to their own interest to comply with it?—Yes.

7955. Have you considered the question of licensing cow-keepers, and would you be in favour of it?—I never considered that question.

7956. You would prefer not offering any opinion on it?—Yes.

7957. Do you think that those who are using the milk produced in the district in which you are engaged have every reason to be satisfied that they are getting milk that is produced under clean and healthy conditions?—Yes.

7958. And you have no suggestion to make which would lead to a higher standard of milk being produced than that which is available at the present time?—Well, I have. I think in the Rural Districts very much more supervision is required than what is given at the present time.

7959. Even in your own Rural District?—Yes—that is to say, in the case of the two Rural Districts there is only one dairy inspector—one for each district.

7960. Do they comprise a large area?—They do, and it is quite impossible for one dairy inspector, particularly when he is an old worn-out man, to properly supervise and get round the districts. I find a number of people unregistered supplying milk, and it is quite impossible to get hold of these people. In order to get a conviction against a man selling milk in an unregistered dairy, it is necessary to prove that he really sells the milk and supplies it regularly, and I think more supervision is required in that way in order to detect those people who are competing with others who have complied with the law.

7961. It is pretty obvious that when a number of people are vending milk in a district, who are unregistered, the supervision is not as complete as it should be?—Yes.

7962. It is rather unfair to allow these people to compete with others who have registered, and who are endeavouring to comply with the conditions imposed by the Order?—Yes; I think it is very unfair. That is what I complain of.

7963. With regard to the cows, have you any information that would enable you to say whether or not the yield of milk from cows is increasing or diminishing within your districts?—Well, I think the yield in my district continues to be pretty well up to the average. In one or two places where thoroughbred Shorthorn cows have been gone in for, the yield has decreased, but where the dairymen have gone in for the half pure-bred animals, I do not think the yield has decreased.

7964. Are milk records kept by any farmers in your districts?—No.

7965. Do you not think that it would be desirable that they should, in order to ascertain the yield?—Yes, but really there are none kept.

7966. There is rather a prejudice against it in a great many instances; but in your own district I can quite believe it would be such an advantage. In the city it would not be of such enormous advantage, because the cows are only kept for one milking period, but with you they are kept over year after year?—Yes.

7967. And they go in for breeding?—Yes.

7968. And by keeping the records and ascertaining the cow's milkers you could, I take it, improve the breed and possibly increase the production of milk?—Many people, while they do not keep a record, have a very fair idea of the cows that are good milkers and keep the calves calves.

7969. Mr. Wm. Wm.—You are familiar with the fact that the records when once established have in every case quite upset the farmer's idea as to which was the good cow?—I have heard so.

7970. That, in other words, the farmer who does not keep the records may continue to preserve the wrong cow?—I have heard it, but do not know how true it is.

7971. The Chairman.—You have a general knowledge of the district in which you practise?—Yes.

7972. Do you think it is a wise policy to limit the premium bulls to pure breeds—I mean the Department bulls, to hand book breeds?—I do not think it is.

7973. Do you think it desirable that efforts should be made to secure bulls whose dams had been good milkers?—Yes.

7974. And by that means to try to improve the yield of milk from the dairy cows generally?—Yes.

7975. You are familiar with the scheme which has been started by the Department with this object?—Yes.

7976. Do you think it is moving on right lines?—Well, so far as it has gone I think it is.

7977. Its development must necessarily be very slow?—Yes.

7978. I do not complain of that, because I think it is essential at the beginning that care should be exercised in the selection of the cows; but it was suggested yesterday that the advantage from it might become very widespread if records were kept of the pure shorthorn herds of the country, and if the bulls produced by deep-milking cows were offered for sale with a record of their dam's yield. Do you think that would be an item of interest, and one that would be likely to develop the scheme?—I do not like to express an opinion. I have not considered the matter sufficiently to give an opinion.

7979. Is there any other view of the question that you would like to offer an opinion on with regard to the increasing of the milk supply?—I do not think so.

7980. Lady Kyrle.—Do you think that in order to ensure uniformity of administration, a central authority would be desirable?—Yes.

7981. To have an inspector appointed by the central authority?—Yes. In much the same way as a medical inspector is appointed under the Medical Charities Act. The local Veterinary Inspectors should be supervised by one or more Veterinary Surgeons attached to the Local Government Board.

7982. Does your County Agricultural Committee approve of premium bulls being subjected to the tuberculin test?—Yes, in Arragh.

7983. Have you disease amongst the cows in your locality?—No, only the ordinary sporadic affections.

7984. Have you lost cows through abortion?—We have had a few outbreaks.

7985. Have you had disease amongst your calves?—Very little.

7986. Under what standard of fat will magistrates convict in your locality?—I can scarcely speak of a standard, but I find when a man is brought up for some breach of the law like that he is usually fined 10/-, and for a second offence £1.

7987. What standard of fat is required in the milk?—Three per cent.

7988. Do they adhere to the legal standard?—Three per cent. of fat.

7989. Because in some cases there has been some deviation from that—do you consider that rather harmful?—Yes.

7990. Do you consider that the by-products of milk should be under the same regulations as the new milk?—Yes. I think we should go further with the new milk before we enter into the question of butter and cheese. I think it desirable that all should be subjected to inspection, but it is a very deep question.

7991. We had evidence that the germs of tuberculosis are found in butter?—Yes.

7992. Do you consider that the retailer in the milk trade should be liable for any defects in his milk at the first instance, and that he should recover damages from the vendor; if the retailer sells bad or dirty milk, that he should be held liable for selling it, and that he should then recover damages from the person selling the milk to him?—Yes, I think the retailer should be held liable in the first instance.

7993. Have you had much trouble with typhoid carriers?—Only one case about two years ago.

7994. Or diphtheria?—We had some outbreaks of diphtheria, but I do not know whether they were due to carriers.

7995. You do not know that it was due to the milk?—As far as I know it was not traced to the milk in any of the cases. The typhoid was traced to the milk; there was a carrier.

7996. The CHAIRMAN.—A person who was engaged in the handling of the milk and offering it for sale?—Yes, a maid who had conveyed typhoid to this place and also to other places.

7997. What happened in that particular case—did the local authorities suggest to the vendor that it would be desirable to terminate the employment of this particular person?—Yes. Unfortunately a great many people got infected by typhoid in a village near by. The owner of the dairy himself got the disease, and his wife, I think, but I am not sure of that; and the carrier herself was brought into the workhouse, and what became of her I do not know. I know she remained there for a length of time.

7998. Was it discovered by the application of the Widal test—the fact that she was a carrier?—I do not know that the test was applied.

7999. Mr. WILSON.—Is the district over which you have control one in which there are many carriers?—No, there are no carriers at all.

8000. And I see that you are of opinion that there is a shortage of milk?—I do not think there is, except, perhaps, last summer, which was an exceptional year.

8001. The people who require milk can get it?—Yes.

8002. You mentioned just now that the Dairy Inspectors had a difficulty in getting over the ground, especially if they were old worn-out men?—Yes.

8003. The Order is not long enough in operation to have old worn-out men in the service?—They were old enough before that.

8004. It is an asylum for old age?—I do not think so, but very often the people appointed under the Order were the ordinary officers of the Board, such as relieving officers.

8005. So that in other words the inspection in these areas is very perfunctory?—Yes, in our district.

8006. Would not that, in your opinion, justify the demands of the city areas to go beyond their own boundary in the event of their discovering milk in a contaminated condition?—I think, perhaps, the city would be quite right, if they found disease traceable to a dairy in the country, to send out their veterinary inspector to make any inquiries they liked. I should have no objection.

8007.8. But not only finding disease, but suspicious circumstances. Take the case of one of the purveyors of milk in Belfast—a case of typhoid being found amongst one of its purchasers. The evidence might be that the typhoid infection might come from one of three or four dairies in the outside districts. Without any further material document, would you not be of opinion that the Public Health Authority in the city should be empowered to go straight out into the country to make inquiries on suspicion?—There is no objection to that; but if the Public Health Committee communicated with the Public Health Authorities in the district in which the suspicion occurred they could make the examination as well as the Belfast Authority. All you would have to do is to direct the local veterinary inspector's attention to the matter.

8008. Even with these elderly men?—The veterinary inspectors is not a very old man in every case.

8009. You are speaking of the veterinary inspectors?—Yes.

8010. We had evidence here yesterday from a scientific gentleman to the effect that in his opinion neither control of the city milk nor the control of the country supply—that neither of these alone would be a sufficient guarantee to public health—that it would be necessary to have the city supply examined, and that the city man should have power to go into the country areas?—That is the feeling in Belfast, but I don't see what is to be gained by it. I think the veterinary inspector in charge of each district is quite as competent to make an examination of his dairy as any man that could be sent from Belfast or any other place. I don't see what such a man can do that the local man cannot do. I think the veterinary inspector to the country is qualified to carry out an examination as well as the city man. I don't see the difference.

8011. And when you come across evidence like this, that thirty-two samples of milk were grossly contaminated with manure, and that twenty-three of those samples came from outside the city boundary, and only nine from inside the city, would not that suggest to you the desirability that milk of that kind should be searched out by the city authority?—Well, you, I suppose if that really occurred the city authority should have something to say, but if such a thing did occur, would it not be wise to communicate with the local authority. Assuming that two-thirds of the milk supply of Belfast is from the country, I think the condition of things not much worse in the country than in the city.

8012. The local authority being largely composed of men in the dairy farming business?—I can only speak for my own two Councils.

8013. You have in your evidence stated that those very men, the Rural Council, consider that there is no necessity for this inspection at all?—Yes; I said that some of them had to be forced to put the Order into operation.

8045. **Lady EVERARD.**—You must recognise that there is a large quantity of milk coming into Belfast from non-registered districts?—I have heard of that.

8046. **Mr. WILSON.**—It would not be from your own area, anyway?—No, there is no milk from my district coming from an unregistered dairy.

8047. In case the Belfast authorities sought power to go outside their own area, you would not consider it unfair?—No, if they sent fully qualified men to supervise it. I would take it bad for an unqualified man to supervise my work. Besides, I don't think these men, while they may be very useful in many ways, are competent to give an opinion about dunes or cows.

8048. We had evidence from one of these gentlemen, and the evidence he tendered showed that the cowhide dairs he inspected were in the most filthy condition?—I don't know what part of the country he referred to.

8049. It is not your district, but it is a rural district?—There are some rural districts that have not appointed inspectors.

8050. You yourself, in your piece of evidence, say that you consider that contamination takes place not so much from diseased cows as from the dirty condition in which they are kept in some places, from the careless and unsanitary habits of the milkers?—Yes.

8051. That is a summary of the conditions to be found in some cases?—Yes, that is exceptional.

8052. **Dr. McCORMACK.**—Do the milkers use animals in your district?—Only in two or three cases.

8053. Are you in the habit of using the tuberculin test?—Yes.

8054. What do you do with the cows that react?—Most of them go to the market.

8055. You told us that on a second application of the test the cow might not react?—She might not react. In some cases it does and in some cases not.

8056. In case she reacts the first time, and does not react on the second occasion, what is the condition of that cow at that particular time with regard to her disease?—She may be a very ordinary case of tuberculosis.

8057. She may be a slight case?—Yes.

8058. Would the fact that she did not react on the second occasion lead you to believe that she could be cured by continuous injections of tuberculin?—I have no faith in that.

8059. Is she not in a state of immunity when she does not react?—Temporary immunity.

8060. Therefore it would be possible to keep that up?—That is a big question.

8061. You have never tried?—No.

8062. You think the proper treatment is to slaughter?—I think so.

8063. **Mr. O'DONNELL.**—How are these inspectors in the rural district appointed?—By the Rural Councils themselves.

8064. Without any qualifying conditions imposed by the medical profession?—Yes.

8065. Are they all veterinary surgeons?—No. The dairy inspector himself is usually the relieving officer of the district or the sanitary officer, and he has the other appointment of dairy inspector of the district as well.

8066. Thus the veterinary inspector is supposed to supervise his work under the Order of 1909, so that there are two inspectors who work jointly?—Yes.

8067. The inspector of dairs and the veterinary inspector?—Yes. It is the duty of the veterinary inspector to look after the dairs and examine the cattle, and to supervise the work of the dairy inspector as far as possible.

8068. And the veterinary inspector is appointed by the local authority?—Yes.

8069. Do you think that it would tend to greater efficiency?—I am not saying it is not efficient—but that it might help the inspectors if they were appointed from some superior officer, say, the Department of Agriculture or the College of Veterinary Surgeons?—Yes, I think the veterinary inspectors, if they were appointed by a central authority, would be in a much more independent position to what they are at present.

8070. There is no doubt that it must be exceedingly

difficult for many veterinary surgeons, whose duty it is to inspect and report, and, perhaps, prosecute, to do that when they are appointed by the very people they have to order prosecutions against?—That does occur in some instances.

8071. In my part of the country (Limerick) it would certainly occur that the inspector would very often have to prosecute his uncle, his father, his nephews, and brothers, and so on?—Such things do arise at that, but I have not hesitated to do so.

8072. On the whole, you think it would be advisable that the veterinary inspector should be appointed by a superior authority rather than the Rural District Council?—I have no doubt he would be in a very much better position if appointed by a central authority, but he is in just the same position as the Medical Officer of Health has always been in. It has been part of his duty to bring prosecutions. He is sometimes prosecuting his clients, but he cannot help it if he is doing his duty. The veterinary inspector is doing nothing more or less. He would be in a much better position if he was entirely independent and appointed by a central authority.

8073. **The CHAIRMAN.**—And it would certainly lead to a more uniform and efficient administration?—Yes.

8074. **Mr. O'DONNELL.**—It would tend to get a standard feed throughout the country. I am sure there must be great diversity of opinion as to the standard of cleanliness in different parts of Ireland?—I have no doubt about that.

8075. That what might pass in Belfast we should look upon as insignificant down in the South, or vice versa?—Yes.

8076. **Sir BRUCE WILSON.**—You spoke of a tendency towards the reduction in the quantity of milk given by each cow during recent years, and you said there was a tendency to give rather less?—I think that such a tendency does exist in parts where they want to largely for thoroughbred animals, but where they want to be half-bred cattle I don't think it would be less.

8077. Do you think that the quality of the milk is kept up to what it was years ago?—I think the quality of the milk this season is not so good, because the price of feeding has gone up so terribly that dairymen have been almost forced into feeding largely on stuff that does not produce a good quality of milk.

8078. The legal standard is three per cent. of fat?—Yes.

8079. Do you think that in your district there are many instances of cows that give less than three per cent.?—I don't think there are ordinarily. Of course, there are individual cows in the district whose milk would not yield three per cent., but taking the bulk of the herd, it would not be better than standard.

8080. Do you think there are many cows that would yield four per cent.?—There are a few.

8081. Would you say these are rare?—It depends on breeding, feeding, and the period of lactation.

8082. In your own district?—I think in my own district there is no difficulty about the three per cent., and a little more in many cases.

8083. You think three per cent. is a fair standard?—Yes, and I don't think it should be reduced.

8084. There are certain cases where an epidemic has been traced to the milk of a dairy in another district. Would you think that there would be an objection to the local authority sending out there an inspector, after notice to the inspector of the district, to examine the dairy?—No, I think not; not if the inspector of the district in which the outbreak occurred was consulted; provided, of course, the inspector sent out is a qualified man, and not an ordinary dairy inspector.

8085. **Mr. O'DONNELL.**—On the whole, you think that the milk supply in your district has not decreased?—I think it has not.

8086. Because some people maintain that the supply has enormously decreased?—I don't think so; but in my district there is no scarcity of milk, except as I said, during the past summer, when the conditions were not very favourable to the production of milk.

Mr. F. W. POLLOCK examined.

8097. The CHAIRMAN.—You are Clerk of the Urban District Council of Lymington?—Yes, sir.

8098. We have already had from your veterinary inspector the history of the methods adopted by your Council for the purpose of carrying out the provisions of the Dairies and Milkshops Order?—Yes.

8099. Therefore I need not go over that ground again with you. Do you think that the local authority you represent has received the amount of co-operation from the magisterial bench that they should expect when prosecutions have been undertaken?—That is a point upon which my Council feel very strongly, for the simple reason that for years past they have done everything they possibly could to see that the dairies in the town are up to a high standard. As a matter of fact, our regulations under the Act of 1896 were even more stringent than the present Dairies Order. When a prosecution takes place for a lower standard of milk than what we hold to be the standard the magistrates don't inflict such a fine as to prevent a repetition of the offence. In one case, where the standard of milk fat was as low as 2.77, the fine was only 5/- and costs.

8100. And even if that offence should be repeated the fine for the second offence would not be increased substantially?—For a second prosecution taking place within twelve months the magistrates, although the milk was reduced to 2.74 per cent. of fat, dismissed the case on the ground that they hold that the milk was sold to the inspector as it came from the cow, although there were circumstances connected with the case which made it very suspicious, inasmuch as the milk that was taken for this test was supplied by a dairyman from the country outside our urban district, and the milk in our can was found to be genuine and the milk in the second can was found to be adulterated. Our inspector was prepared to prove that the milk from one can was supplied to one class of customer and the milk from the other can to the poorer people. The magistrates dismissed the case, on the ground that the milk was sold as it came from the cow.

8101. They accepted the testimony of the person who was implicated in the result of the prosecution?—Yes.

8102. Mr. O'Hanra.—Who were the magistrates in that case—had they any interest in the trade?—No.

8103. The CHAIRMAN.—What magisterial bench adjudicated in that case—we don't want to know their names?—The ordinary Petty Sessions Court magistrates.

8104. None of them were engaged in the milk trade?—No.

8105. And there was no suggestion that they were influenced?—No.

8106. Still they took what must be regarded as a perverse view of the circumstances that were presented to them?—Yes.

8107. And told to help and assist the local authority in trying to secure that a pure and healthy supply of milk should be available for all classes of the community?—Yes. My Council spends about £4,000 in the £ on our rateable property in the carrying out of the Dairies Order, and they hold very strong views that when they spend so much money they cannot get convictions, and that it is practically loss of money instituting prosecutions. Prosecutions have proved abortive, even though the analyst, Mr. Harold Tutton, Belfast, was produced as a witness to prove that the milk was deficient in milk fat to the extent of 14.86 and 8.96 in two cases. The cases were dismissed, the defendant proving that the milk came from the cow in this case. In the case I have already mentioned the milk contained 2.56 per cent. of fat, and in another 2.74 per cent.; but both cases were dismissed by the magistrates.

8108. That must tend in the opposite direction to what your Council would desire. I quite admit that it is extremely irritating that the magistrates will not apparently take an intelligent view of the situation presented to them, but at the same time, if your Council, in consequence of the policy of the magistrates, abandoned prosecutions altogether, is it not reasonable to fear that the standard would become still lower?—Of course, the Council quite appreciate the difficulty, but still the fact remains that it has been held in law that if it can be proved that the milk is supplied as it came from the cow, no matter what the standard is, that evidence is accepted in preference to the evidence of our analyst.

8099. But there was an additional element of suspicion in the case to which you referred, in view of the fact that pure milk was discovered in one vessel and adulterated milk in another; and was the information well founded that one class of milk was distributed to one class of the community and an inferior class to the poorer sections?—That was the information of our sanitary officer and the inspector who took the sample. He followed the case, and he found that milk was distributed to one class of customers from one can, and that milk was given to the poor from another can.

8100. And this evidence was brought before the magistrates?—Yes; that was, of course, only an element in the case.

8101. It was an element of very grave suspicion?—Yes.

8102. The statement that you have now made was depoted to by the officer of your Council, who from his own observation saw this particular practice followed?—Yes, he actually saw it done.

8103. And he had reason to believe that it was not an exceptional circumstance?—Yes.

8104. Was that milk brought in from an outside area?—Yes. I may say that for the last three years we have had no case of adulteration from samples taken inside the urban district. All the prosecutions have taken place in connection with milk supplied from outside the urban district. We have eight dairy-men living outside the urban district supplying milk to the town. The supply amounts to about one-third of our milk supply. There are fifty dairy-men living inside the town; the amount of milk supplied by them is about two-thirds, or practically 350 gallons a day, and in not one of the samples taken of the town milk was there a prosecution for adulteration for three years.

8105. Are samples taken and subjected to analysis regularly?—Yes.

8106. That would seem to support the view put forward by the Public Health Committee of Belfast, that a district like yours should have the right to send their inspector into the outside areas for the purpose of ascertaining the conditions under which the milk is produced?—Under certain conditions, which, I think, Mr. Thompson, our veterinary inspector, brought out in his evidence.

8107. I quite recognise that it would be distinctly unfair to have the work of a professional man supervised or supervised by a non-professional man. We do not contemplate that such a course as that should be followed, but what I do suggest is that it is reasonable to ask that a qualified man, in a district such as yours, should have the right to go into a district which supplies your town with milk, in order to ascertain the conditions under which it is produced?—I certainly agree with the suggestion, provided it is a qualified man that goes into the district. As a matter of fact, about a year ago we had a serious outbreak of typhoid in an adjoining district. That was traced to the distribution of milk. It was a very serious outbreak, and there was a large number of deaths. My Council, knowing that some of the milk came from the adjoining districts where this typhoid was, sent a circular to each of the two adjoining Rural District Councils, begging them to be more strict in the carrying out of the Dairies Order. I need not tell you that such a circular was more or less resented by the Councils concerned. Fortunately, our medical officer, who was also medical officer of the adjoining district, had a right to examine into the source of the typhoid, therefore there was no question of an outside party coming in to that case. That is an example of what has taken place within the last eighteen months in our own particular district.

8108. And if it did not happen that the Medical Officer of Health had a right to make the examination to which you refer the public health in your district would be seriously imperilled?—We were really in a very serious state for some time until it abated, because we were afraid that it would be conveyed to the town through the milk supply.

8109. Was the distribution of milk from a particular dairy suspected?—It was, and the dairy was closed up, but unfortunately the disease had spread about a number of dairies before it had been detected, and these dairies were also closed up.

8080. Was prompt action taken by the Rural Council?
—Yes.

8081. And you were saved from an invasion of the epidemic?—We were just saved.

8082. Mr. O'BRIEN.—Does any milk come up from your district to Belbait?—None from the Urban district, but there is from the Rural district.

8083. Is there a Lurgan Rural as well as a Lurgan Urban district?—Yes.

8084. What is the character of your district—of the inhabitants?—We are purely an industrial community. All our people are engaged in the linen trade and work in factories, and the Council is anxious to do everything in its power to assist these people in getting a pure supply of milk.

8085. Are you satisfied that the people get a sufficient supply of milk?—The supply of milk is ample.

8086. And they actually get it?—Yes.

8087. And they can afford to do so?—Yes.

8088. You are not entirely satisfied that the supply of milk is good enough?—We are not satisfied at all that we cannot insist on the supply being up to a good standard. Once milk falls below three per cent. of fat we are not satisfied.

8089. You have a good many hand-locks in your district?—Yes.

8090. Is that work in which women and children take part?—Yes, and the male population.

8091. Is it unhealthy work for children?—It is slow work, but not unhealthy.

8092. Does it not entail a good deal of dust flying about?—Not in weaving. The atmosphere is kept in a moist state, but there is no dust flying about.

8093. Pulmonary diseases are not prevalent?—Tuberculosis is prevalent, and that is one of the reasons why the Council took up this question of milk supply, because we are troubled with a good deal of consumption in our district.

8094. Have you any reason to believe that that is conveyed by milk rather than from human beings to

human beings?—That is a point you will have to ask our medical officer about. I would not like to express an opinion on it.

8095. The CHAIRMAN.—The analyst for your district is an officer appointed by the County Council?—He is appointed by the County Council, and he acts as analyst for the whole of the Councils, whether rural or urban. We are bound to send our sample to the County Council analyst in order to get a certificate to prosecute. The County Council, of course, appoint their own officers under the Food and Drugs Act, usually policemen, and they take samples all over the county. Our Council has not to pay its own officer for taking samples, but we have to pay our share of the County Council's expenses under the Food and Drugs Act, and also we have to pay the County Analyst for every sample sent in, and in the event of a prosecution, all fines are appropriated by the Government, and the Urban Authorities are at the discretion of the justices as to the reimbursement of costs only.

8096. Mr. WILSON.—Has your Council ever discussed the possibility of establishing a municipal milk depot?
—No.

8097. Have you any idea as to what the breed of cattle would be on that question?—I don't think my Council would be inclined to adopt such a course. They have quite enough on hands. Besides, the milk supply in the town is not limited.

8098. The CHAIRMAN.—At what price is milk sold retail in Lurgan?—In the summer time at twopenny a quart, and in the winter at threepenny. There was a meeting of milk men some time ago to discuss the question of raising the price, but they were so divided that they did not do so. There is a good deal of butter-milk sold in the district.

8099. Mr. O'BRIEN.—There are no creameries?—No, not within four or five miles.

8100. The CHAIRMAN.—You have no reason to believe that the use of milk as a diet is not fully appreciated by those responsible for the upbringing of children?—I don't think so.

Mr. SAMUEL BAILEY, M.R.C.V.S., examined.

8101. The CHAIRMAN.—You are a Veterinary Inspector under the Newtownards Rural District Council?—Yes.

8102. As you are the first witness coming from that body, I should be glad to know what provision has been made by your Council for putting the Diseases and Cowsheeds Order into force?—The Rural District Council give every facility to examine every animal. There are two inspectors.

8103. That is what I want to get at—what staff have you got?—Two, a Dairy Inspector and a Veterinary Inspector.

8104. The Dairy Inspector attends to the mechanical part of the work with regard to cleanliness, and the condition of the cow-hyges and the milk-shops?—Yes.

8105. And you are in charge of the animals?—Yes. I generally take a run round everything when I am there.

8106. You give a general supervision when you are on the premises?—Yes.

8107. How many cows are in your district?—There are 1,530 registered cows.

8108. Is any of the milk produced in your district sent into the city of Belfast?—Yes, a fairly large proportion.

8109. Is it sent in by rail?—Not so much by rail as by cart.

8110. It extends to within a short distance of the city boundary?—Yes.

8111. Is there any scarcity of milk in any part of your district?—In parts there is, such as Carrvondore, and the Electoral Divisions of Kilmood and Tullyskell, where there are no registered dairies.

8112. To what cause do you attribute the scarcity?—Since cattle and bad-rhuff became dear, and the farmers of the Ards gave attention to sheep-farming more than dairying; but the scarcity is more acute since the Diseases, Cowsheeds and Milkshops Order (No. 1) of 1908 came into force. Formerly small farmers sold milk to labourers, but now they refuse to sell either these register their dairies, as they state that if registered it would be necessary for them to put their cowsheds in order, and they are also afraid of being compelled to destroy cows suffering from tuberculosis.

8113. Rather than comply with the Order the small farmers have abandoned selling milk altogether?—Yes.

8114. From what point of view the Order has restricted the sale of milk in these particular districts?—Yes.

8115. In Carrvondore and Kilmood and Tullyskell this condition of things exists?—Yes, there is no registered dairy within three or four miles.

8116. And in these particular districts some of the poorer classes could not get milk to buy if they had the money?—Yes; they used condensed milk. In one case, instead of milk, a baby had cold tea in a bottle.

8117. At what age?—About four weeks old.

8118. Does that severity prevail all the year round?—Not so much in the summer as in the winter.

8119. Has any effort been made to supply that district with milk by your Council?—No.

8120. Do you think it is a hardship that these people should be obliged to live in a district where it is impossible to obtain milk for money?—Yes, and I suppose it could be remedied by having all owners of cows registered, and compelled to put their byres into proper order. I would be in favour of granting them leave to put the byres into order.

8121. Would you extend the provisions of the Order to all owners of cows, whether they sold milk or not?—Yes.

8122. And thereby avoid what has led to the restriction of the sale of milk?—Yes.

8123. And you would be in favour of a public authority being empowered to grant them a loan in order to put their byres and premises into order?—Yes, under a certain valuation.

8124. You would not give loans indiscriminately?—No.

8125. Do you not think that it would be a judicious use to devote public funds to provide milk for a district like this, where the inhabitants cannot secure it for money?—I think it would.

8126. It seems idle to ask whether or not the children of that district are getting sufficient milk when a little baby is fed on cold tea?—Yes.

8127. You say that the farmers would not sell milk because they would have to register their premises and be liable to inspection?—Yes.

8128. And that the provisions of the Order might compel them to make a certain capital expenditure to put their premises into proper condition?—Yes, and some of them could not afford it. They say it would not pay them, as they only sold a quart of milk a day. I told one farmer who told me that that it would pay him to do so for the sake of his own family who used the milk.

8129. This supply of milk must have an injurious effect on the constitutions of children reared in districts like these?—Yes.

8130. Condensed milk is used in these districts as a substitute?—Yes.

8131. Do you know anything of the use of condensed milk yourself?—I don't.

8132. Of course, you know nothing of the conditions under which it is produced, and the treatment to which it is subjected, in order to render it capable of being kept for any length of time?—I do not.

8133. Now, with regard to the milk-producing stock in the district, has that been satisfactory in your experience?—Very satisfactory these last four or five years. I have inspected the shambles for fourteen months and did not see a single tuberculous cow killed in that time. When I started as veterinary inspector in this district in October, 1908, I examined all the cows, and in two cases I found in the herds, three cows in one and two cows in the other, suffering from tuberculous. I advised their destruction, and told the owners that if they did not destroy them they would lose all the cows, and more than likely they would lose some of their family. The cows were destroyed, but one of the owners, and the son of the other owner, have since died from tuberculous.

8134. You make an examination of the cows from time to time?—Yes.

8135. Do you examine the calves?—Yes, of every cow.

8136. Have you found the calves affected with tuberculous?—Only in the two cases I mentioned where the animals were slaughtered and compensation given.

8137. Did you apply the tuberculin test previous to slaughter?—I did.

8138. With what result?—In very bad cases it does not reach at all, but it is easy to detect the animals by their general appearance.

8139. Have you found disappointing results from the application of the tuberculin test in every case?—No.

8140. Has your experience been that it is reliable as an indication of the condition of the animal?—Nearly every case in the early stages.

8141. You account for the failure in this case by the fact that the animals were largely affected with tuberculous?—Yes, over the whole system.

8142. And in these instances the reaction is not pronounced?—No.

8143. But no danger would arise as far as you could see, as you tell us the animals were obviously suffering from the disease?—Yes.

8144. Were there swellings?—No.

8145. Coughing?—Yes.

8146. Wasting?—Yes, and the animals were emaciated, and they became greatly emaciated in a very short time, one of them.

8147. You paid compensation?—Yes.

8148. With regard to the payment of compensation, do you think it is wise to limit the sum to the amount prescribed in the Order—£10?—I think £10 is very little for a cow worth, perhaps, £20 or £25.

8149. And you would be in favour of withdrawing that limit and giving an opinion to the person assessing the compensation to exercise his own judgment and allow what was just and fair?—Yes.

8150. Do you think that would lead to a more immediate detection of suspected cows?—Yes.

8151. That it would induce the co-operation of the owners of the cows in directing your attention to animals that were suspicious?—Yes.

8152. And they would probably be prevented from disseminating tainted milk?—Yes. Several owners have sent me word to see their cows. They thought they might be suffering from tuberculous of the udder. They are very careful about their cattle. The poor man who keeps only one or two cows is the only one that I have trouble with.

8153. The man who is engaged largely in the trade believes that it is to his interest to co-operate with the local authority in carrying out the provisions of the Order?—Yes.

8154. And he gives you every reasonable assistance and facility in doing so?—Yes.

8155. And it is only with the small people who carry on a small trade that you have any difficulty?—Yes, the man with one, two, or three cows.

8156. Don't you think these people supply a very useful want in the district in supplying milk to the labouring population?—Yes.

8157. That it would be a pity to deprive them of the opportunity of doing the useful work in which they are engaged?—Yes.

8158. Is it for that class of people that you would suggest the local authority should advance money in order to put their byres into proper condition?—Yes.

8159. In the majority of instances they would not be able to do it themselves?—No.

8160. And if they were compelled to construct the byres it would probably drive them out of the trade altogether?—Yes.

8161. And thereby deprive the district they were supplying of any chance of getting milk at all?—Yes.

8162. Are all the cow-keepers selling milk in your district registered?—There might be an old one selling a quart of milk to a labouring man who is not.

8163. But all engaged in a regular trade are registered?—Yes, as far as I know.

8164. Have you considered the question of licensing—would you be in favour of it?—No.

8165. For what reason?—If a man is licensed, and you withdraw the licence, he can use the milk otherwise for his own family.

8166. Yes, but you limit the danger to his own family?—If his cows are examined, and it was seen that he was selling milk of diseased cattle, he could not use it.

8167. Will you be good enough to remember that every Rural District Council may not carry out the inspection in the same way in which it is done in your district, and that each district will establish a standard of efficiency for itself, and in that way danger might arise?—Yes.

8168. You believe that if the present provisions are rigidly enforced, and if proper supervision is exercised by the officers appointed under registration, that the work could be effectively done?—I do.

8169. But you don't think that licensing would in any degree be helpful to you in carrying out the provisions of the Order?—I don't think it would.

8170. Do you see any other objection to the granting of licences other than the one you have mentioned—that the man may abandon the sale of milk and go into the dairy trade?—No.

8171. Would you be in favour of imposing on those engaged in butter-making, or cheese-making, for instance, the same conditions as apply to those engaged in the milk trade?—Yes.

8172. And if the licences were granted, and if all were compelled to take out licences, the difficulty that you foresee would be obviated?—I believe it would.

8173. You would not give a person the right of poisoning his own family, as a witness who came before us said he would?—No.

8174. Do you believe that all the byres that are not registered are necessarily in an unsafe and insanitary condition?—Not all, but some.

8175. And it is in order to avoid the expense that would be imposed on them by carrying out the conditions that are laid down that they refuse to register?—Yes. Some say that their cows might be condemned as tuberculous, and that they would get no compensation.

8176. I am rather inclined to think that the statement that you have put forward now would be a strong argument in favour of imposing the conditions on those who sell milk and those who don't sell, in order to safeguard their own families and households?—Yes.

8177. The statement that you have made that they object to have their animals slaughtered—do you think that objection would hold if they felt absolutely certain that they would get full compensation for the animal slaughtered?—It would not.

8178. And if that were made possible it would further dispel the objections which present themselves to your mind on the question of licensing?—Yes.

8179. Have you in your experience been able to determine in any case that an outbreak of infectious disease was consequent on the milk supply?—No, as far as I know.

8180. Has no epidemic of infectious disease arisen in your district traceable to the milk supply?—No.

8181. And no inquiries have been made in your district in cases of suspicion?—No. The medical officer often sent me to inspect cows, and I could find nothing wrong with the dairy or the udders.

8182. How infection been traced to those having charge of the cows?—Not as far as I know.

8183. I see you give, in the proofs of your evidence, an unfortunate experience with regard to deaths from tuberculosis?—Yes.

8184. That was the case of which you have already given us the history?—Yes. One of the men said that if the cow was diseased it would break him, and I told him it would be worse if he lost his wife or a member of his family. He slaughtered the two cows there and then. The other man also slaughtered his three cows in the same way. One of the owners died last year from tuberculosis, and the son of the other owner also died from the disease.

8185. Were both drinking the milk of the diseased cows?—Yes.

8186. That is a confirmation of the idea that it is desirable to extend the provisions of the Order to all cow-keepers?—Yes.

8187. In this case valuable lives were sacrificed from ignorance of the danger that the owners were exposing themselves to?—Yes.

8188. Nothing could be more convincing as a matter of proof as to the danger arising from consuming milk that was infected with tubercle bacilli?—Yes.

8189. Mr. WILSON.—Was the milk from these two districts sold in Belfast?—No.

8190. What is the name of the district?—Crawford's Burn.

8191. The CHAIRMAN.—Were these cows in such a condition that the owner should be conscious of the fact that they were diseased animals?—He thought, perhaps, they had a bad liver, and he was always "doctoring" them.

8192. He recognised the fact that they were diseased?—He knew that they were ill.

8193. These were animals that could not be saved?—Yes.

8194. Despite all treatment in the future?—Yes.

8195. Because they were extremely bad?—Yes.

8196. Did you make a post mortem examination?—Yes, and the lungs were stuck to the side, and there were lesions all over the system.

8197. Of course, it would be absurd to think that animals like that could yield healthy milk?—They could not.

8198. Was there any evidence of tuberculosis of the udder?—There was.

8199. There was no need for the application of the tuberculin test there?—No.

8200. With regard to the yield of milk of the cows, do you think that the quantity has increased or diminished from your experience?—No. In some districts there are better dairy cows than others. In some districts they go to more for breeding shorthorns.

8201. Do you think the breeding of shorthorns has an indirect effect on the production of a heavy milk supply?—I do.

8202. What scheme do you suggest would increase the yield of milk from what I might call the commercial cow?—If they could give prices at shows for good milking strains I think it would do a lot of good.

8203. Are you familiar with the scheme which the Department has established for the purpose of improving the milking strains?—No; I have not seen it.

8204. It has been in operation for a couple of years. Of course, no practical results are manifest from it yet, but I was anxious to know whether or not cowkeepers in your district would be willing to co-operate with the department in the development of a milking strain of cows?—I think they would.

8205. It is competent for the owner of any cow that is of good conformation, and what one would describe as a good breeding animal, no matter what her pedigree might be, to apply for the registration of that cow, and then he is obliged to keep records of the milk

of that cow, and if it reaches a certain standard of bulk and butter fat, the produce of that cow, if a male, will be eligible for a premium?—Yes.

8206. Would you think that would be a useful scheme?—I would.

8207. No effort has been made to take it up in your district?—No.

8208. I am rather surprised, because your County Committee in Down co-operates in nearly all the schemes that are promulgated by the Department?—Yes.

8209. But no effort has been made in connection with this scheme so far?—Not amongst the farmers.

8210. You are clearly of opinion that the use of shorthorn bulls, that are produced entirely for appearance and the production of beef, is not useful to the development of a milking strain?—It is not.

8211. Would you think it a useful work if an effort was made in the direction of improving animals that would be more useful from the dairy point of view?—Yes.

8212. Lady EVERARD.—Are all the dairies in your district supplying milk to Belfast registered?—Yes, all in my district.

8213. Are there many premium bulls in your district?—I think about five.

8214. Are they obliged to be subjected to the tuberculin test by your County Committee of Agriculture?—No.

8215. Does much milk come from your district by train to Belfast?—Not much; nearly all by road.

8216. Have you many goats in your district?—In some parts of it.

8217. Does Lady Dunleath have in your district?—Yes.

8218. She has a large number of goats?—Yes.

8219. Do you think they are good things?—Yes, in the poorer districts they are very good.

8220. She is keeping rather a superior breed?—Yes, they milk all the year round. The ordinary Irish goats only milk in the summer months.

8221. Do you think that the goats she has are making an improvement on the goats in the country?—Yes, in her district.

8222. Are they being scattered about County Down, or are they kept near her own place?—Nearly all about Ballyvaughan.

8223. Do the farmers sell milk to their own labourers in your district?—No. They are not allowed to sell to their labourers.

8224. I think that to rather a disputed point whether they may sell to their labourers or not. I think the idea of the Act is that they may sell to their labourers. That question was asked of the Local Government Board witness who was examined before us, and he said that the question was never decided by the Courts, but that he considered that they might?—They cannot supply or sell milk unless they are registered.

8225. The CHAIRMAN.—It is a question of interpretation rather than the words of the Act.

Lady EVERARD.—The Local Government Board witness said that he did not like to express any positive opinion on the point, but that he considered that the farmer would be allowed to do so, but you find that they don't do it?—In some districts they do.

8226. Is the milk supplied to the labourers by farmers in your district as part of their wages?—Some do. I sometimes get a notice that a man is selling milk.

8227. Do you consider that all bye-products of milk, such as butter, cheese, buttermilk, skim milk and separated milk, ought to be under the same provision as the new milk?—Yes.

8228. Do you think it would tend to better inspection and a more efficient carrying out of the Order if an inspector was appointed by a central authority such as the Department of Agriculture or the Local Government Board?—Yes, if the Local Government Board would appoint an Inspector to go round all the districts and see that we were all doing our duty, I think that would be right.

8229. Mr. WILSON.—You recommend extending this Order to all people who keep cows regardless of selling milk?—Yes.

8230. Have you been able to form any estimate of the extra amount of work involved in applying the Order all over the country?—No.

8231. It would be largely increased?—Yes.

8232. On the other hand, it might be worth the money?—I believe it would be worth the money.

8233. In your own area you are the only professional veterinary surgeon appointed by the local authority?—Yes.

8234. And you are responsible for the inspection of 1,600 dairies?—No—175 dairies and 1,200 cows.

8235. You could get over them and carefully inspect them?—Yes.

8236. Are you troubled with Belfast people going out to visit you?—Some of the farmers whose places I inspect ask me, "Am I home to you or to the Belfast Inspector?"

8237. What is the attitude of your Local Authority on that question—they objected to Belfast officials going out?—Yes.

8238. And do they still object?—They do. The Council give us every facility—the Council has two inspectors appointed under me.

8239. And in your opinion is the claim of the Belfast authorities to go outside their own area not reasonable?—No.

8240. I am not speaking of Belfast particularly, but of any big city to go outside their own area in order to inspect the source of food supply?—When the Rural Council give every facility and carry out the law, I don't think it is right on the part of an inspector from an outside district to come in. There should be one or two men to inspect the districts to see that we do our duty.

8241. We had figures given in evidence that thirty or more samples of milk were found to be grossly contaminated with manure?—Yes.

8242. And only nine of these samples were of milk produced inside the city, and twenty-three were samples of milk produced in the country. Would you not consider that the Public Health Authority in such a city are neglected their duty if they did not go into the country and see that the milk was not contaminated in this way?—Perhaps it would; but they are pretty well looked after as it is in the country.

8243. And yet there is this discrepancy regarding the samples taken in the city of milk produced in Belfast and in the outside areas?—There are good dairies in my district.

8244. I am referring to the bad dairies?—There are few of them sending milk to Belfast. No milk comes from the bad dairies to Belfast, as the people owning these dairies have only a few cows and they sell the milk in the district.

8245. I am not saying that the Belfast people should have authority to interfere with your inspection, but what I suggest is that they should be given power in the event of finding a bad sample of milk to trace it to where it comes from?—I think that would be right.

8246. Are there many Union cottages in your area?—A good many.

8247. Do you think that the erection of these cottages has influenced the relationship between the labourer and the farmer in the matter of the milk supply?—No.

8248. We have had a good deal of evidence that when a labourer went into the Union cottages, the farmer takes no responsibility for supplying him with milk?—If he leaves the farmer the farmer does not give him milk.

8249. That is to say that the erection of these cottages in certain districts may have decreased the supply of milk available for the labouring man indirectly, but none the less effectively?—Yes.

8250. Are you aware that the Board of Works lend money to farmers?—Yes.

8251. We asked a Board of Works witness, who gave evidence before the Commission, whether they were willing to advance loans for the reconstruction of buildings under this Order and he said, "yes," and that they were prepared to loan an unlimited amount of money under their conditions. Do you know if that is widely known?—No.

8252. Because that would replace the suggestion that money should be granted, seeing that there is a State authority already in existence that does that?—Yes.

8253. The CHAIRMAN.—Do you think that the owner-keeper of whom you spoke could give security to the Board of Works for a loan of £30?—I don't think they could, but less would do.

8254. Thirty pounds is the smallest sum that the Board of Works will advance, and for that reason I am afraid it would not deal with the case you have in your mind?—I don't think so.

8255. Mr. WILSON.—You were only referring to very small loans?—Yes.

8256. The CHAIRMAN.—And there are the worst as a rule?—Yes.

8257. Mr. WILSON.—Are there people in your district who are keeping milk records?—Not many.

8258. It is not prevalent?—No. Some land stewards do, and also Lady Darnley.

8259. In your records of evidence you state that you are of opinion that tuberculosis has greatly abated?—Yes.

8260. So far as you see personally aware?—Yes.

8261. The Belfast figures that we had yesterday are precisely the opposite?—Yes.

8262. The figures we had were that the number of cows suffering from tuberculosis that were slaughtered in the abattoir have about trebled?—That is not as with us, and in the report of the Union in regard to human beings the figures dealing with tuberculosis show a decrease. In 1906 there were 121 cases of tuberculosis; in 1907, 119; in 1908, 123; in 1909, 104; in 1910, 85; and in 1911, for nine months, 56.

8263. The CHAIRMAN.—Are these deaths of human beings?—Yes.

8264. Dr. MOORMAN.—What district is that return for?—Newcastle; 2-5 per thousand is the death rate.

8265. Mr. WILSON.—Can you give any suggestion from your own knowledge as to why the Belfast figures should be so high. Is it the habit of people in your district to send in their animals to the city abattoir?—They sell to some other man, and he takes them to some other park.

8266. So that if that custom is prevalent in other parts of the country it may explain the increase in the Belfast figures and the decrease in the number slaughtered in the country abattoirs like your own?—Yes.

8267. Is it the custom in your district for the dairyman to milk his cow for only one season and then let her for the butcher?—Yes, except in the case of a very good cow.

8268. It has been suggested that that has a very bad effect upon the cow population of the country, and that a scheme might be devised whereby the cowkeeper would be encouraged to keep on a proportion of his best cows. Would you approve of that?—Yes. There are some nice cows fattened off and killed.

8269. And that you consider objectionable in the interest of the business?—Yes.

8270. Have you formed any opinion about the possibility of dividing the premium system—a dairy bull in a dairy district and a beef bull in a beef producing area?—Yes.

8271. You consider that would be workable?—Yes.

8272. Dr. MOORMAN.—What is the cost of milk in your district?—3d. a quart all the year round.

8273. The labourers in those Union cottages that you spoke of, do they get a supply of milk?—Yes, from a dairy close beside them, or some get it from their employers.

8274. None of them keep cows?—No.

8275. Are the labourers badly off?—In some districts.

8276. In the Union cottages?—Yes.

8277. What do you do with the cow that re-sets?—Have her isolated and stop the sale of the milk.

8278. What ultimately becomes of her?—Sometimes she is sold and sent away to other parts.

8279. Do you ever make any attempt to cure her?—Not an aged cow.

8280. A young cow?—In one, two or three years of age we do.

8281. Do you persist in injecting tuberculin?—Yes.

8282. Have these been successful?—We have had some very good results.

8283. Mr. O'NEILL.—Do the milk suppliers of your district send in milk to Belfast mostly by road?—Yes.

8284. Is there any provision at this end for cleaning the cans going back?—Not that I know of.

8285. They don't bring back any wash or anything of that sort in the cans?—No.

8286. Do the dairymen in your district feed cows at all on grain or wash?—No.

8287. And they don't bring wash in the milk can?—No.

8288. You are quite sure of that?—Yes.

8289. Is any of the milk sent in by train?—I think I know two parties who send milk by train from my district.

8290. Do you know if they send the milk in sealed cans?—The cans are not sealed, but they have two lids on them, and there is a lock on most of the cans.

8291. These are well looked after, I suppose?—Yes, and there are always some neat and clean and tidy.

8292. Do the cans look as if they were very much knocked about by the railway company?—Sometimes. When one is used for a length of time it looks as if it has been knocked about.

8293. What class of labourer is getting cottages in your district—are they agricultural labourers?—Mainly. There might be some shoemakers or tinsmiths as well.

8294. I think you said that these men occupying the Union cottages are very poor?—A good many of them.

8295. They are mostly agricultural labourers?—Mostly.

8296. There is a considerable difficulty about their getting milk?—In some districts.

8297. Where they are not living on the farm where they are working?—Yes.

8298. How much does the agricultural labourer earn?—About 14s. a week on an average.

8299. And he has to pay for his house out of that?—Yes.

8300. What rent do they pay—a shilling a week?—I don't think so much, I am not sure.

8301. Do they get an acre of land?—Some of them; they were only getting half an acre, but they are getting an acre lately.

8302. They are getting 15s. a week wages?—That would be about the average.

8303. Do they get anything else?—Some farmers give them sweet milk and buttermilk as well.

8304. And feed of any sort?—I don't think so.

8305. Do they burn turf now?—It is almost exhausted.

8306. These agricultural labourers are better off than in my district in the South, but I rather gather from you that you thought that they could not afford to buy milk.

The CHAIRMAN.—He said that in three or four districts it was impossible to get milk to buy. It was a question of inability to procure and not inability to purchase, which is a still more difficult question to deal with.

8307. Sir STEWART WOOLHOUSE.—What do they do, Mr. Balfin, with the calves in your district—do they sell them immediately after their birth?—Some of them rear the calves. Some of them milk their cows for perhaps three months and then put two calves to her and turn her out on grass.

8308. Why do they sell so many calves?—It does not pay a dairyman to rear them, because at this period of the year milk is dear.

8309. The CHAIRMAN.—You do not send calves into the slaughter in Belfast?—No. There are hardly any calves slaughtered in our district at all.

8310. Have you any other suggestion, Mr. Balfin, to put before the Commission that you think would be in any degree helpful to them?—I do not think I have anything more to add. I think the rest of a labourer's cottage is 1s. 6d. or 2s. a month.

8311. I thought there was a mistake about the previous figure. Would you think that it would be a legitimate expenditure of public money, and when I speak of public money I allude to rates, to make some provision to supply a district with milk, the buyer paying part of the price and the Rural Council paying the balance out of the rates or by a grant from the Treasury?—I think it would.

8312. Do you think it is an unreasonable condition to expect people to live and bring up families in districts in which milk is not procurable for money?—I do.

8313. And you think some effort ought to be made by some authority, whether local or State, to provide for such a state of things?—I do, and there are some of the labourers who would be quite willing and able to pay for the milk if they could get it.

8314. The hardship is greater there because the children are starved owing to the inability of their parents to procure milk?—Yes.

Mr. SAMUEL T. COWLEY, M.R.S.I., examined.

8315. The CHAIRMAN.—You are Dairy Inspector under the Bangor Urban District, and the Sanitary Sub-officer?—Yes.

8316. Have you got a Veterinary Inspector in your district?—The last witness, Mr. Balfin, is my Veterinary Inspector.

8317. Has your Council put into force the provisions of the Order in its own area?—My Council had adopted the regulations governing dairies and cowsheds and milkshops in 1908.

8318. Before the last Order was promulgated?—Yes.

8319. So you put your houses into order before the central authority took action?—Yes, that is so.

8320. And have you reason to be satisfied with the dairies that exist at the present time within your urban area?—Yes.

8321. You think they are in a condition to produce milk in a cleanly and hygienic condition?—Yes, we have inspection.

8322. Is any portion of your milk supply derived from an outside district?—Only one-third of the milk consumed in the Bangor Urban District is produced within the Urban District, the remaining two-thirds being supplied from the surrounding rural district of Newtownards. There are twenty-seven dairies sending milk into Bangor.

8323. Bangor is residential?—Yes.

8324. With regard to the working classes in that district, have they any difficulty in securing milk?—None whatever.

8325. There is milk available for all that have money to buy it?—Yes.

8326. And is the value of milk as a food for infants and children reduced by the mothers of the humbler classes?—Yes, as far as I know.

8327. You don't see, in the course of your inspection, wasted and emaciated babies, that don't seem to be properly treated?—No, sir.

8328. Would you see any objection to the keeping of cow-keepers?—I think that all persons keeping a cow should be registered and licensed. For instance,

if a man keeps his child the Inspector for Cruelty to Children takes action, but if that man wishes he can keep an emaciated cow, suffering from tuberculosis, and poison his own family.

8329. And you would not award him that privilege?

—No. I have known a case of a milkman coming in from a registered dairy into Bangor and whose herd was inspected, but in the summer season he had not enough milk, and he would buy milk from the small farmers along the road who kept a cow which was not inspected. Cases like that occur. Then you have unscrupulous dealers, who will buy cows suffering from tuberculosis, and will get unsuspicious milk-vendors to sell the milk. I have known that to occur.

8330. That man has a registered dairy, and he lives in a district where the provisions of the Order are enforced, and people believe that reasonable precautions are taken in order to procure pure milk, and he sells in the name of pure milk milk that is contaminated?—Yes.

8331. What remedy would you suggest?—I would suggest that every cow-keeper be registered and licensed, the same as the man keeping a dog.

8332. Or a man keeping a public-house?—Yes.

8333. Would you take into the purview of the licensing authority the character of the man. If he was a man who had been carrying on an illicit trade in the past, and trying to evade the law, would you give the local authority power to withhold a licence from him?—I would undoubtedly take into consideration the character of the applicant for the licence.

8334. Have you any reason to complain of the manner in which the milk is distributed from the outside areas in your district?—Yes. I do not approve of the milk-boats. These are of a defective design, inasmuch as the taps on the cans are in close proximity to the boots of the milk driver, and liable in the distance to come into touch with his boot, with the result that the dirt is scraped off the boots by the outlet of the tap.

8335. And the person who gets the next supply has the benefit of whatever is attached to the boots of the driver?—Yes.

8336. Are there milk-shops in your district?—Only about five.

8337. Is it from these the poorer people of the district get their supply?—Some of them. The poor people in my district do not seem to have any particular supply.

8338. The demand from them is fitted?—Yes. They seem to get it from the nearest one.

8339. One of the difficulties with regard to the poorer people is that they may be able to purchase milk in the beginning of the week, but towards the end of the week the money begins to run out, and the dairyman who was supplying him would have an unsold surplus?—We have very few people in Bangor.

8340. Happy Bangor! I know it is a residential district. Of course, your position is less acute than in other districts, particularly in the slum parts of Belfast. Do you think the milk is always stored in a suitable way by the people who vend it?—In the urban district I have insisted on a proper milk-store being provided apart from the dwelling-house. I found that the milk was kept in the scullery, where a lot of domestic work was done, and contamination likely to arise. I have insisted on the vendors of milk providing a proper store, apart altogether from the dwelling-house.

8341. That is only in the urban district?—Yes.
8342. But you have no right to impose those conditions on the outside areas?—We approached the Local Government to get power to inspect outside areas and they have refused us. We wrote to twenty-four people supplying milk to the urban district of Bangor, and we asked them if they had any objection. Sixteen of them sent in favourable replies and others absolutely refused. I have been around these sixteen dairies.

8343. Have you any reason to find fault with them in general?—Not in general. Some of them are very fine; one or two require slight alterations, and the owners said that they were going to have these done, and taking them in general, the dairies are very fine.

8344. With regard to the habits of the people who are engaged in the handling of the milk, had you any opportunity of determining whether they were careful and clean?—I was not there at milking-time, but I think that is a most important thing.

8345. Would you suggest that it should be competent for an authority to go into a district from which its milk supply is derived in order to see that the conditions were in accordance with the provisions of the Order?—Yes. In 1907 we had an outbreak of scab, and the first five cows were supplied with milk from the same dairy, and we had no authority to go out. At that time I offered, if the Rural Council at Newtownards appointed me sub-sanitary officer without any salary, to inspect these dairies for them, and report on them, and they absolutely refused to accept my offer. Since then Mr. Bodie has been appointed Veterinary Inspector, and they have appointed two Dairy Inspectors recently.

8346. Is it only recently that Dairy Inspectors have been appointed?—Yes.

8347. I suppose your district would be one of their best markets?—I think so. I know of two dairies in the rural district that send milk into Belfast.

8348. What is the price charged for milk in your district?—Threepence halfpenny a quart.

8349. Do you ever have samples analysed to ascertain whether the milk is pure?—That is left in the hands of the Constabulary. I tried to get an appointment as Inspector under the Food and Drugs Act, but did not succeed.

8350. And it is only the County Council that can give you power?—Yes.

8351. And they refused?—I don't think they refused.

8352. Did you make application?—Yes, to the Bangor Urban District Council. I had reason to suspect certain things, and the Urban Council asked the sergeant of the Constabulary to take samples, and he made reports to them.

8353. As far as your observation goes, are the Constabulary Inspectors under the Food and Drugs Act diligent in taking samples and getting them analysed?—I don't think so. I don't think they have any salary for it.

8354. And in the absence of payment, you think they are not anxious to undertake any very serious duties?—I think so.

8355. You think it ought to be competent for an authority like yours to have power to take samples of milk and send them for analysis without the cumbersome method of having them taken by the Constabulary Inspectors?—Yes.

8356. With regard to the vessels in which milk is conveyed to your district, have you had much difficulty in securing that they are kept in proper condition?—No. The vessels are well made and can be kept clean.

8357. The men in charge, are they clean in their habits and dress?—They are, sir.

8358. Lady EVELAND.—Do you think that all the by-products of milk should be under the same regulations as new milk?—Yes, I would agree with that.

8359. We have had it in evidence that the tubercle bacilli are to be found in butter. Have you had any outbreak of typhoid in your district?—It is practically unknown in Bangor.

8360. Have you had any case of diphtheria caused by milk?—Yes, but we were not able to trace it to the milk supply. I had one case in Bangor of diphtheria where a child died. A child of the man supplying milk to the family where the death occurred had an illness, but the doctor said that the child was not suffering from diphtheria, although he performed tracheotomy on the child.

8361. Mr. WILSON.—I presume there are no bacterial tests of the milk in your district?—No.

8362. Either for tuberculosis or anything else?—No.

8363. Lady EVELAND.—Who would make the analysis when the samples were taken by the police?—Sir Charles Cameron. He is the County Analyst.

8364. Dr. MOONMAN.—Do you attend any of the fairs?—No, sir.

8365. You don't know the conditions under which cows are milked in these fairs?—No. I would like to say, with your permission, that in 1906 there were thirty-five cowsheds and one hundred and sixty-seven cows registered in my district, and that at present there are twenty-one cowsheds and eighty-four cows registered.

8366. The CHAIRMAN.—Do you attribute the decrease in the number to the application of the Order?—No, sir, it was not the Order. It was the stringent by-laws that we made ourselves, and adapted with regard to the keeping of animals. Owing to the growth of Bangor the cowsheds got too near the houses, and had to be removed in accordance with our bye-laws.

8367. So you do not attribute this diminution in any way to the application of the Order, but rather to the application of local bye-laws, which the Council considered it desirable to adopt, having regard to the residential character of Bangor?—Yes. When the houses got too close to the cowsheds they had to be removed.

8368. Mr. O'BRIEN.—Are these cowsheds under your jurisdiction in the town?—Yes.

8369. It is a large town?—It has a valuation of almost £28,000, and I don't know what our population is, but it is a growing town.

8370. Would it not be better that the dairies should be outside the town?—I don't think so. I think town-produced milk is better than country-produced milk.

8371. I don't mean a long way outside the town?—That would be alright if the people could get land in the outskirts of the town.

8372. For building purposes that would be valuable land?—Yes, for detached villas. In the town the cows are better protected than in the country.

8373. I think that is pretty general, but at the same time one would say that it was not conducive to the best conditions of the health of the neighbourhood that you should have cows in the town?—They must be thirty feet from a dwellinghouse, and the manner is not allowed to accommodate.

8374. Do you allow pigs to be kept in the town at all?—There are only a few people who keep pigs in Bangor, but they are in a distinct by themselves. The pigs have to be kept thirty feet from the dwelling-house also.

8375. Sir STEWART WOOLMER.—The population of Bangor is about 10,000?—Yes, something like that.

The Commission adjourned at 5 p.m. on the following morning.

TWENTIETH DAY.—FRIDAY, 16TH FEBRUARY, 1912.

The Commissioners resumed their sittings in the City Hall, Belfast, at 11 a.m.

Present:—P. J. O'NEILL, Esq. (Chairman); MISS MARGARET McNEILL; SIR STEWART WOOLNOCSS, M.D.; GEORGE A. MCCREATH, Esq., F.R.C.S.E.; ALICE G. WILSON, Esq.; and DERMOT O'BRIEN, Esq.

S. W. STRANGE, Esq., Secretary.

The CHAIRMAN.—I understand that Dr. Balke (Medical Superintendent Officer of Health, Belfast), desires to make some reference to statements that were made before the Commission yesterday regarding the quality

of the milk which is supplied in some of the poorer districts in the city. We shall be glad to hear what you wish to say, Dr. Balke.

Dr. H. W. BALKE re-examined.

8376. The CHAIRMAN.—The allegation was made before the Commission yesterday that in the poorer districts of Belfast milk of a very inferior quality is vended amongst the working classes. The witness making the allegation was asked if these facts were reported to the Public Health Authorities, and if prosecutions were ordered in these cases. The answer was, that it was regarded as more or less hopeless making representations, as prosecutions were not ordered in all cases. Would you wish to make any statement with regard to this allegation?—Yes, sir, I would.

8377. That, I assume, is the matter to which you wish just now to refer?—Yes. With regard to the milk supply in the poorer districts, I have no knowledge whatever that the milk sold in the shops there is of a worse quality than the milk generally retailed in the other parts of the city, and the ground upon which I make that statement is, that particular attention is paid to the milk supply in the poorer districts, and that samples are taken from time to time, and the standard will bear favourable comparison with the standard of milk in other parts of the city. As regards cleanliness, I do not understand that statement being made, because for a considerable time we had prosecutions when we found milk uncovered; it is a rare case for vendors to keep milk uncovered. With regard to the complaint, I should like to know to whom they were made. None were made to me. I have spoken to the Food and Drugs Inspector, and he said that none were made to him. They should be made to the Public Health Department. Another point I should like to know is, upon what grounds this statement was made as to the standard of milk? Was there an examination made, or was it by looking at the milk and the appearance of it? There is a point with regard to different kinds of milk. If whole milk of a good quality is allowed to stand, the cream will rise and show on the top, but pasteurized milk does not do that to the same extent. People who would not be acquainted with the fact, looking at pasteurized milk would think it was of a very poor quality, but we have had milk tested that gives this appearance, and it came up to the standard. I know in one instance a complaint was made to our Department, and the gentleman was going to cease using the milk altogether. The milk was tested on more than one occasion. The vendor of the milk invited the person to test the milk himself, and it bore out the statement made by the vendor as to its quality.

8378. Your point is, that while a person looking at pasteurized milk might be disposed to pronounce it inferior, if subjected to the test it would not bear that character?—Quite so.

8379. Mr. O'BRIEN.—Is there much pasteurized milk sold in Belfast?—One firm sells a large quantity of it, and small shop-owners get a good deal of their supply from this firm. The Commission may take it that we pay special attention to the poorer districts as to the milk supply, and any complaints made would be promptly attended to by us.

8380. The CHAIRMAN.—I tried to ascertain from one or two of the witnesses examined here engaged in the trade, if they knew of any dairy proprietor whose trade was exclusively in the poorer districts, and I could

get no confirmation of the allegation that the trade in the poorer districts was restricted to certain men who sold an inferior milk at a price below the standard price. I got no confirmation from any dairy proprietor that they knew of such a trade being carried on by any particular member of the trade?—I do not know of any member of the milk trade who carries on a trade amongst the poor solely. It is generally a mixed trade they do; but I stated before that the very poor class of artisan does not get a constant supply; they buy here and there and everywhere.

8381. Is there any other aspect of the question to which you would like to refer, Dr. Balke?—No, sir. I think that I emphasized all I had to say about other matters in my previous evidence.

8382. Miss McNEILL.—You would not, in any way, put a difficulty in the way of persons who wish to report defective cases of inferior milk—you would help in that case if you got a definite statement that the milk was of a bad quality?—We would be very pleased to give any such assistance. Every complaint is promptly attended to.

8383. There was no evidence that there was any written complaint sent to your office?—Never to me, or any of my officers. When Mr. Wilson asked me about the standard of milk I said it (spoken facetiously) should not be found in 1888 a.d., when I meant to say it should not be found in 1908 a.d.

8384. Mr. WILSON.—The presence of the cream has it?—Yes.

8385. With regard to your Report for 1910, the number of samples that were taken for adulteration was 575, of which fifty-one were found to be adulterated. That is a percentage something less than ten?—Yes.

8386. In your method of taking samples, do you endeavour to arrive at a fair average of the average quality of the milk, or are you trying to catch the criminals?—We try to catch the criminals.

8387. So that of these 575 samples a larger number would be adulterated than if you take the samples of the average milk?—Yes, that is so. We watch people that we suspect.

8388. Ten per cent. of what you might call more or less suspicious cases are found to be adulterated?—Yes.

8389. And this would not represent ten per cent. of the whole of the market milk?—No.

8390. It has been put in in evidence that you do not invariably prosecute when you get a standard of fat in milk lower than three per cent.?—The rule that has been followed largely for some time is that if a poor sample, a few points below standard, is found, in the case of a man of good character and no previous conviction, very often we warn him. A sample is taken afterwards, and if we find that it is again below standard, a prosecution is maintained. The difficulty is that if you go to the Court with a very small percentage below the legal standard, you are not encouraged in the Court, and if it became widely known that they could water milk down to a certain standard, I do not think it would improve the quality of the city supply.

8391. You think it would reduce good milk down to three per cent., and standardize milk on a three per cent. basis?—Yes, I am afraid we would not get any

samples where there would be four per cent. of fat—that is, amongst the class of dealers we are referring to.

8392. The CHAIRMAN.—I rather gathered from your evidence, and from the evidence of the other officer sitting under you, that you were in some degree deterred from bringing prosecutions in the local Courts because of an unwillingness on the part of the magistrates to convict unless the milk was below a standard of 2.50 of fat. Do you think that a policy of that kind is likely to encourage milk vendors to supply milk that would only reach that standard that saves them from the risk of prosecution? I am putting it to you, as a matter of policy?—If it became widely known by taking a prosecution and failing in the prosecution, you might lower the standard. But where the milk only reached 2.50 there would be a prosecution.

8393. I thought it was under 3.00—that where it reached 3.50 you did not think it would be worth making a prosecution, as you suggest you would not get a conviction. What I want to put before you is this—would it not be a wise policy to undertake prosecutions in all cases in which the milk did not reach the legal standard, and throw the responsibility and the onus of having that milk sold in Belfast on the magistrates who would refuse to vindicate the law?—Probably I could answer that by explaining one or two cases. We had a few cases brought forward, and our officers were not encouraged—in fact they were slightly recommended for bringing cases of that description against respectable dealers.

8394. I can see your point, but I am afraid of the result of it.

Mr. WILSON.—In point of fact the figures show that roughly two-fifths of the adulterated samples are not taken into Court at all—that is to say, thirty-four are prosecuted out of fifty-one samples of the men whose milk was found to be adulterated—three-fifths are prosecuted and two-fifths are not?—That was for the year 1910. The percentage below standard in some cases was so small that we did not think that we would be able to sustain a conviction.

8395. Those are the cases that the Chairman has referred to?—Yes.

8396. The CHAIRMAN.—If the dealers in milk, who only wish to avoid prosecutions, learned that a standard of 2.50 will render them immune from prosecution, in all probability they will provide a milk that is not above that standard?—There is a danger of that.

8397. That is what I have reason to fear, and I am rather inclined to think that if the allegations are correct regarding the milk vended in the poorer districts, that would be one of the causes that leads up to it. I am not saying the allegations are correct, but if they were correct I would be afraid that it would be a result of such a policy?—As a matter of fact, the Public Health Committee have this matter under consideration, and it is in their intention that the prosecutions shall be pushed in every case.

8398. I quite see that the Public Health Authority is not willing to run the risk of these cases being scouted out of Court, and their officers subjected to rather adverse criticism from the magisterial tribunals?—Yes.

8399. But notwithstanding that fact, I think the public would rather resent a policy of that kind, and in all probability the influence of public opinion would be strong enough to bring about an altered view as

the part of the magistrates?—Yes, I think it is quite possible.

8400. I am only putting that view before you as it occurs to an outsider. Of course, you being familiar with local circumstances, and having experience of what the result of these prosecutions has been, would be best qualified to judge as to the right policy; but I think it well to put that view before you for your consideration?—Thank you for your suggestions, which will be very carefully attended to.

8401. I am making them in no hostile spirit, but I am merely presenting a view that occurs to an outsider hearing the circumstances for the first time.

Mr. WILSON.—The same witness put out the suggestion that the legal standard should be raised to four per cent.; would that be practicable?—I think it would be quite impracticable.

8402. Of course, one must recognise that if the Public Health Committee takes the line of action that every sample below three per cent. standard is adulterated, several dairymen would be liable to prosecution although their animals may be responsible?—I think there would be considerable danger of prosecutions of that description, but one of the previous witnesses suggested that in cases of that kind if we had power to see the actual milking and to take a second sample, it would be a fair thing to do, and prevent any injustice.

8403. The CHAIRMAN.—And it would be a guide as to whether it was a case in which a prosecution should be undertaken?—Yes.

8404. Mr. WILSON.—And you would be in favour of that power being given?—Yes, very strongly.

8405. Dr. MOOREHEAD.—The three per cent. is a fair standard to fix?—I think if you take milk on the whole, it is a fair standard to fix. We have milk above that.

8406. Do I take it that pasteurised milk is largely in use?—No, except probably amongst small shopkeepers and the poorer classes.

8407. In the poorer districts?—Yes, and even in other parts of the city it is sold in shops.

8408. Where is the pasteurisation carried out?—There is a large plant in North Queen Street.

8409. The CHAIRMAN.—There is a pasteurisation plant in the city?—Yes, the owner is a very large dealer in milk.

8410. And are small retailers supplied by him?—Yes, and some of the larger ones too.

8411. The small shopkeepers, if they have an extra demand, can be supplied?—Yes.

8412. Dr. MOOREHEAD.—Have you observed any ill effects from the drinking of that milk by young children?—I do not think I watched it closely enough, but the information from friends who have watched it is that it is injurious if long persisted in. In fact it is in my own opinion too, because pasteurisation makes it not so easily digestible.

8413. And you also know that it injures some of the finer qualities of the milk?—Yes, and I know it is difficult to get people to use this milk. I was told that in one of the larger hospitals they had a pasteurising plant, and that neither the nurses nor the patients would use the milk.

8414. Are there any instructions issued in regard to getting anything into the milk to supply the parts injured by the process of pasteurisation?—No.

8415. You are aware that fruit or meat juice controls any defect in the milk?—Yes.

Mr. M. SMITH, J.P., examined.

8416. The CHAIRMAN.—You are engaged, Mr. Smith, in the dairy business in the Bangor district, I understand?—Yes, sir. I am deputed by the dairymen of Bangor and district to appear before you. I have been interested in the milk supply of Belfast from the start.

8417. With regard to milk cows, does your experience extend over a considerable number of years?—Yes, for a long time.

8418. Do you think that the milk-yielding qualities of the cows have improved or decreased?—Decreased.

8419. And it is not now possible to get the same yield of milk from cows as in the earlier periods with which you are familiar?—Taking them on the average, you could not.

8420. To what cause do you attribute that change?—The shorthorn bulls became too numerous.

8421. Are you opposed to pedigree shorthorn bulls in dairy breeds?—I am to a certain extent. If we want to bring back a better milk-yielding strain of milk cows we must change the breeding, and do away more or less with the shorthorns.

8422. Are you familiar with the scheme introduced by the Department to establish a milking breed in Ireland?—Yes. I am a member of the Agricultural Council.

8423. Are you familiar with the scheme they have introduced for the production of a milking strain?—Yes.

8424. Do you approve of it?—Partly.

8425. What alterations would you suggest?—To go back to the milking strain we had formerly.

8426. Where are they to be found?—For instance, in the Kilmacneek Dairy School there are forty purchased cattle for the supply of the dairy school, and everything is done fair and square. They will not have any other cattle there only the Ayrshires.

8427. Do you suggest the infusion of Ayrshire blood when crossing the Irish cow?—Yes, I would go back partly to the old Irish cow if I could get her.

8428. You would suggest the infusion of Ayrshire blood into the Irish milk-producing cow?—If I was going to try experiments on my own behalf I would do that, to see if I could work out the idea I have in my mind.

8429. But surely you must know that a cross of that kind would not produce a valuable animal from the butcher's point of view?—If the animal produced a large quantity of milk I would give away other points.

8430. You disregard everything except the production of milk in the breeding of a dairy herd?—I would not disregard everything, but I would give away small points to gain greater ones.

8431. What depreciation in value would you think would arise to the stock in the country by crossing with Ayrshire bulls as opposed to short horns and Aberdeens Angus and Herefords?—As an experiment I would try it, and if it did take away from the sale of the animal we would gain in the milk produced.

8432. You are dealing with the question, naturally enough, purely from the milk-producing point of view, but a Government Department is obliged to take a somewhat wider view in their experiments?—That is so, I would wish to strike a happy medium.

8433. Regarding the character of the feeding of cows, in your own experience, are they more or less highly fed than they used to be when producing milk in such abundant quantities?—I have severely ever changed the style of feeding of my father before me. In the early distillery times are used, which are supposed to give a good yield of milk. I like to have a good article in milk, and I watch for the cleanliness of milk and inspection of dairies to carry that out. The great difficulty is the want of trained labour to carry out my ideas of cleanliness.

8434. Do you use taken as a food at all for milk cows?—Yes.

8435. And have you always used them as a food?—They were not known in my early days.

8436. So that there has been some alteration in the character of the feeding supplied?—Yes.

8437. And notwithstanding the higher quality of the feeding, your opinion is that the milk yield has depreciated?—Yes, in general. I had a cow milking thirty-two quarts a day, and the first eight quarts I could not offer to a customer, they were so poor. She was milked four times a day.

8438. For what length would she yield that?—Two months; and she would milk something about sixteen quarts when I sold her as a stripper.

8439. Do you keep milk records?—Not exactly. I keep an eye on the quantity such cow gives, but I do not keep accounts.

8440. You do not keep registered records?—No.

8441. Would you say that one-third of the milk of the cow you mentioned, if subjected to the ordinary test, would probably be certified as adulterated with water?—The analyst could tell, but it would be very inferior milk.

8442. And very inferior in butter fat?—Very little fat in it, but where some yield weak milk, and you would have an average of ten or twelve cows and mix the milk, you will have no fear that you will not be able to give a customer first per cent. of fat.

8443. At all seasons of the year?—There might be a time when the turnip season is wrought out that you would not.

8444. Have you noticed any difference between morning and evening milk?—The first of the morning milk should be thinner, and for that reason I would value uniformity in the time of milking; but you cannot do that always.

8445. Do you send any milk into Belfast?—Not at present, but my son has a very large dairy and he is sending it in.

8446. Constantly?—Yes.

8447. Is there any difficulty in procuring hands to work the dairies as compared with your earlier experiences?—Yes. As soon as they can get other employment they leave, and you often have to milk your own cows. It has been a harrowing question with me. Dirty milk, sore udders, and 10 per cent of the

things that I consider wrong in the milk business, are due to careless work in the byre. You will have to try to rear up a crop of boys to the dairy business from the ground up, and I was asking myself how that could be done. We are supporting boys in the industrial schools, and I think that these boys from thirteen years of age should be drafted to farms in different districts. The Government should subsidise that farm, and these boys should be trained to the different branches of farm work. They should have six months' experience in one department and six months in another, and so on. If these boys from thirteen to sixteen years of age were employed in this way on the farm they would take an interest in cleanliness that you cannot get from a fellow of a coarser calibre. These boys' education could be attended to in the evenings.

8448. With regard to your own labour, how is it recruited?—We have to advertise and take what terms we can.

8449. Have you any opportunity of training a boy, the son of one of your workmen, in the occupation his father has followed?—Sometimes.

8450. Have you any difficulty in inducing the boy to undertake these duties?—The boys look up as a rule to a higher standard of employment. It is the broken-down fellow head up that will undertake what he calls the drudgery of dairy work, and he goes away after he earns a week's wages. The dairyman has to train one fellow and then another, and that is the reason why many milkmen retire from the business.

8451. Is your experience the typical experience of those engaged in the trade—are people living in some more remote rural districts subjected to the same inconvenience that you are?—It is becoming general, and in some of the remote districts I am told it is worse. Fewer the town there is an exemption of people. Our labourers have got comfortable homes, and we do not so attentive as they were.

8452. Do you think the introduction of the Labourers Acts, and the establishment of independent homes for the agricultural labourers, have been detrimental to the dairy industry?—More or less. These cottages cost about six per cent. on the outlay, and if the Government gave a sturdy single-man labourer 26 for the first year, and 430 for the second year, and let the farmer be works for pay 43 10s., it would be better.

8453. If we were establishing a new political creed in the country it would be interesting to take up your ideas, but I am afraid our Commission is not entrusted with any such work?—I hope your report will solve these difficulties.

8454. With regard to disease in cattle, have you ever had any losses through tuberculosis?—Not exactly through that. I believe there is rather too much alarm about that question.

8455. You think it is exploited for more than it is worth?—Yes. I have seen a good cow killed and nothing wrong with her.

8456. Are you a believer in the tuberculin test?—I want to know more about it before I give my sanction to it.

8457. You are quite right not to commit yourself to anything you do not understand. You never had any cattle slaughtered compulsorily during your experience of the dairy trade?—No.

8458. With regard to the quality of the milk, do you think it has improved since the quantity diminished?—The quality of the milk in Belfast in the winter was very bad, and I tried to get it remedied, and did to a very great extent by a milk tester which I had, and which could detect water in the milk. After a time the Corporation appointed an analyst, and he could detect anything in the shape of adulteration. My little instrument could only detect water when it was mixed with the milk.

8459. So you have been studying the question of adulteration for a very long period?—Yes. It was one of my father's points—never let milk and water meet if you want to sell honest milk. At present cheap milk is going into the city.

8460. Does the price differ very much in your experience?—In the winter, it was fourteen a quart in the winter and threepence in the summer, but when you come to look at the quality of the milk—

8461. Do you say that the quality has improved?—Yes, it has improved under my own supervision. I was supplying sixteen pence barrels with milk when extra supplies were wanted; I had to buy veterinary milk, and I tried to detect it.

8462. Have you considered the question of licensing?—Yes.

8463. Would you be in favour of it?—They should be licensed; even the man milking in milk sixty miles away should be checked in some way.

8464. You think it reasonable that the local authority should have power to go into the outside district from which they receive their supply, in order to examine the conditions under which the milk is produced?—Most decidedly. If a man is from sixty miles away we can have no supervision over him at all, and if there is a prosecution against the man retelling his milk in the city the producer is not touched at all. We have also these "cuckoo" men coming into the city in the summer and injuring the permanent dairymen, who has to work at a loss during the winter.

8465. With regard to the floors of byres which you mention in your summary of evidence?—I am very fond of a nice byre, but I have condemned the concrete under the cows' knees, as I have come to the conclusion that it is unsuitable. One cow might stand in it, but the knees of the great majority of the cows would be affected by the concrete. When she tries to rise she is crippled, and next day she is worse, and she may fall on her breast owing to the swollen knees, and by-and-by you have to pull her out and put her in a loose box on straw. "Housemaid's knee" is only a fool to this. I have submitted to the rate about concrete with great reluctance.

8466. What would you suggest in lieu of the concrete. I take it that you are in favour of an impervious floor of some kind?—Yes, I go for the concrete about 18 inches up from the end of the stand, or not more than two feet; then after that, if I had a cow with tender knees, I would break up the concrete and bed it, and put chaff on the top to give the cows ease.

8467. Would you think a wood floor would save the difficulty of "housemaid's knee" in a cow?—I approve of that better than concrete. There is always a something in wood that is softer and kinder than concrete.

8468. Have you anything in your mind that is really impervious—of course, you quite recognise the necessity for impervious floors in order to prevent the anti surface being impregnated with sewage matter?—Yes, that is why I would have the 18 inches.

8469. Do you think that is sufficient?—Yes, I think it is as a rule; there will not be anything wrong if you do that.

8470. Have you any reason to complain of the conditions laid down in the Dairies and Cowsheds Order, or the inspection carried out by the local authorities?—Not with the local authorities; but there is a thing I would like to refer to—the evidence given by Dr. Balin as to the poor quality of the milk in the poorer districts. That milk may be bought in a small shop, and by the time the bulk of the milk is nearly sold you have the entire fat gone, and nothing left for the poor customer who comes in for the remainder of the milk; and what is the character of the shop-keeper? He has to live, too. But is he able to live? If he is not able to live he might think, perhaps, it is well to add a little water to the milk, and the poor customer may suffer. Careless milking, and leaving milk in the cow's udder, and want of cleaning the udders, are the greatest grievances I know in the dairy trade, particularly the leaving of milk in the cow's udder, which causes milk to become bad and corrupt.

8471. Dr. Moorman.—You spoke of crossing with a view of improving the milking strain?—Yes. I say the shortness is reared for beef, and we have lost in the milk.

8472. Do you think the Ayrshire bull with an Irish cow would produce a milking strain pure and simple?—I am not an authority, but I say that I would be inclined to try them myself.

8473. You spoke of a happy medium—have you any breed as a happy medium yourself?—No, but I think that there is something wrong, and we should try to make it right.

8474. Is the quality of the milk affected by the feeding?—Yes, mangolds will make light milk.

8475. Have you ever tried beet?—No.

8476. The Chairman.—Do you think that mangolds will give a worse flavour to milk than turnips?—Yes, and in the burning.

8477. It does not give the disagreeable flavour to milk that turnips will?—It is not disagreeable in a sense, but it will make one ask what is wrong.

8478. Dr. Moorman.—Do you have any female labour among your milkers?—No. At large dairies we may get assistance from workers' wives or servants.

8479. Your milking is done mostly by men?—Principally.

8480. What are these men paid?—£10 for the half-year, and bed and board for a good man.

8481. Mr. Winton.—What do you pay when the man lives in a Ulster cottage?—He will get 25/- a week if he is a really good man, and a good, clean feeder, who will do your work without requiring you to stand over him.

8482. Dr. Moorman.—Can you get men at 18/-?—Yes, and £1, and some men pay results after that.

8483. You spoke of recruiting the labour from the industrial schools?—Yes.

8484. Are you aware that in many of these industrial schools agriculture is taught?—Yes.

8485. And that the boys have to milk?—I know that. I am quite content with our local industrial school. I never found a boy coming out that was anything but a spoiled boy, and my reason for saying that is that they stay in the schools too long. When they are thirteen years of age, if they had to go out and work on the farm they would learn to be very useful before they were sixteen, and if they would like to follow up the business, I would give the farmer the privilege of binding them as apprentices from sixteen years to twenty years of age, and make them come out thoroughly competent dairymen or ploughmen, as the case may be. If you had a crop of these boys in the country things would be improved very much.

8486. Mr. Winton.—I take it that you are of opinion that the beef trade has affected the dairy industry?—The beef business was the main point, and then the dairy business suffered. How is it that the dairy business has got down so low within the last five years, when we were endeavouring to increase dairying, keep the money at home, and keep the foreigner out of the market. The whole thing seems to have gone the wrong way, but we hope that it will go right. I see the dairy business is the one that we should develop in this country. You want good milk, and plenty of it, to make the dairy business pay.

8487. We have had a good deal of evidence before us that the tendency is, in the neighbourhood of cities, to buy cows, milk them dry, and kill them?—Yes.

8488. Would you consider, from the point of view of the dairy industry of the country, that this is a distinct evil?—The dairymen consider that if he keeps his cow a second year she will not be so profitable, and if you breed from her her offspring will not be so healthy. A man in this city, who keeps one hundred cows, has a plan of buying them as big and as cheap as he can get them, and he never keeps them for a second year.

8489. I am thinking of the matter from the point of view of improving the breed?—Of course, it is a pity to see a well-bred cow knocked on the head if she is a good milker; but the dairymen, as a rule, do not go in for deep breeding. It is more the gentleman farmer who does that. The dairymen want a strong cow, that he can afterwards sell without losing his her. They are bought largely from the provinces.

8490. It has been suggested to us by several witnesses, that it might be advisable to induce the dairymen who carries on a trade of this particular kind, to keep over the best of his cows, and to breed from them before having them slaughtered, and as a means towards that end it has been suggested to us that the Department should treat the cows in the same kind of way as they do bulls—induce the dairymen to breed from the best of his stock?—I would be in favour of that, so far as giving him compensation for keeping her on. A man will not do that unless he is not losing by it.

8491. With regard to the concrete floor, it is used practically throughout the city and country?—I believe so, but I would condemn it.

8492. Would it be your opinion that all the cows in the neighbourhood have got "housemaid's knee"?—If you have five or six out of twenty, and put those aside for treatment, it is not an encouragement, and that law is made to be broken in the case of humanity and cruelty to animals. I say that a man should be prosecuted who forced a person to injure and give pain to his own cows. I have seen many cows in the best market with such knees or big as your two firs, scarcely able to walk for half a mile. There are a

number of cattle in that state. There are some cattle who might not be in that state; but one man may be on a plank bed for a long time and it would kill another man in a week.

8493. You are of opinion that this Order has increased the number of cows suffering in this way?—It did with me. I am speaking for myself.

8494. Mr. O'HENRY.—You would be quite in favour of having the upper parts of the floors where the cows put their knees down of polished clay?—It would be more pleasant than concrete.

8495. That is what they naturally lie on out-of-doors?—Yes.

8496. Something like the barn-floor in the country, with the puddle made hard?—Yes.

8497. I think the Board of Works witnesses said that that would be quite a legal floor—is have the upper part under the lines of the cow made of polished clay. If that is done you will not get big knees on the cows?—That is against our rules.

8498. I do not believe it is?—I do not know whether they have modified the rules or not.

8499. The CHAIRMAN.—You are in the Dwyer district and are a law unto yourself?—I am speaking of our rules all over.

8500. Have you ever seen flare mats used under the knees of cows?—I saw a light bed of straw put under the mats.

8501. I have seen the mats used without chaff. I may tell you it was in a *lunatic asylum*?—There must be some sane men there.

8502. Mr. O'HENRY.—You are a member of the Agricultural Council?—Yes.

8503. I think you said you deplored the decrease in the dairy produce in the country?—Yes. Professor Gordon read a very instructive paper on the matter, showing that the dairy produce had gone down considerably.

8504. And it was from these statistics that it was shown that the export of butter had decreased?—That is what Professor Gordon went on, and Mr. Russell also.

8505. Professor Gordon gave evidence before us, and I asked him whether he had got evidence from the creameries which export butter the butter of Ireland as to their produce—whether their produce had increased or decreased—and he said he had not. Since then I have got the statistics from 333 co-operative creameries, and in 1902 the value of the sales was £1,180,389, and in 1910 it was £1,280,000, or an increase of £99,600 in value between 1902 and 1910, so that I think that one can say that the milk production has not gone down, but that there is some other cause for it, and it was suggested that more milk was being given to the rearing of calves, and also that the standard of living was higher, and that more butter was being consumed in Ireland. So that I think that when one talks of the decrease in the milk supply and milking properties of the cows of Ireland one has to have some very definite figures, and I think there is rather a tendency for people to say that nothing is so good now as it was forty years ago. Unless people can produce figures to show that some forty years ago milked more than they do now it is difficult to say whether they did or not. You are objecting to the shortness of cows, as producing less milk, but I doubt very much whether you can get as figures of the milking powers of the cows of forty years ago. Yes, I suppose, have not kept any records of a number of years?—I do not keep daily records. I see what every cow is milking. Sometimes I milk one cow, and that prevents trouble.

8506. Would you find that you have no cows in your herd that produce as much milk as they did, say, thirty years ago?—Well, I will not say that.

8507. Or is it that you find it more difficult to buy them?—If you go in for a very high-class cow you have a heavy strain. You give £25 for her, and she might not milk sixteen quarts a day.

8508. And you are of opinion that the milk properties of a cow are more valuable than the best qualities?—To the dairyman. I am speaking from the milk point of view. Professor Gordon, in his paper, gave us five reasons, and he referred to the inferior labour.

8509. And milking?—Yes.

8510. Sir SAMUEL WOODHOUSE.—You stated that it was your opinion that the milk supplied to Belfast is of a better quality than it was in your earlier years. Did you mean that the cows gave a richer milk, or that there is less adulteration?—I mean that there was not one man out of twenty in Belfast fifty years ago that gave pure milk, and that when the cows failed they added water. I sent circulars to the public and to my customers, and I opened the eyes of the Corporation to the state of things that was going on, and they appointed an Inspector.

8511. Mr. O'HENRY.—You believe, in fact, that the people of Belfast are getting more honest?—There has been many a dishonest milkman made honest.

8512. The CHAIRMAN.—So that the law has been to some degree helpful in improving matters?—Yes. In the circular I sent out I said—"The adulteration of milk is one of the worst trades that can be committed in supplying food for public consumption. True, it does not actually administer poison, but it strikes at the root of a nation's health by enfeebling the young, punching the underfed, and stirring the consumption allowed to the sick and aged. It is like committing murder by pen-penalties. Where adulteration is measured out to each mouth as in innumerable public and private establishments, the daily adulteration of even a small proportion becomes at length a serious evil. It is starvation administered in small doses. A rich man's child living at home may care little about the quality of his milk; but to workmen's children, and even to school-boys and school-girls, it becomes a matter of vital importance. For, to mention nothing else, the abstraction of cream, by diminishing one source of animal heat, if long continued with children mainly fed on milk, causes them to fag, pine away, and die. After long experience I have found out other abuses, viz., "skipping" or leaving cooks and others appointed to receive milk. This system is carried on for two reasons: some dairymen bribe to get inferior milk put in, and others bribe to get custom and undermine the party supplying the milk. This is often done by skimming off cream, and afterwards shoving the inferior quality of the remaining portion of the milk to masters or governors, or whoever is in charge."

8513. Dr. WOODHOUSE.—What price could milk be sold at to pay?—When milk is below fair price a quart it comes to be profitable, unless the dairyman is fortunate in having very good milk-producing cows.

8514. Is it your opinion that milk should be sold at 1s. 4d. a gallon in order to pay?—It is not too much for it; and that only gives a man a living, enables him to pay honest wages, and live like a man who has a large sum of money invested. The dairyman is living a life of drudgery, and he is working long hours.

8515. The CHAIRMAN.—How many cows have you got?—Between young and old, fifty at present, between one place and another.

Thank you very much for your evidence.

REV. JOHN F. SHEILA, P.P., CONTINUED

8516. The CHAIRMAN.—You are Parish Priest of Saintfield, Father Sheila?—Yes. I would like to say a few words with regard to the quantity of milk that is to be had in the country districts. We find that in winter there is a great scarcity in some parts of the country. The small farmer keeps a cow in the summer, and she goes dry. Some labourers also have a few goats, and they also go dry, and we find that these people have no milk in some instances for part of the year.

8517. And milk is not procurable?—No, it is not procurable. That is the point. I notice that the people fail in appearance during the period that milk is not to be had.

8518. You can see a perceptible change in their physique?—Yes.

8519. And in their general appearance at the period at which no milk is available?—That is so, and I do not think the failure to procure milk is on account of the absolute scarcity of the milk. I think it is perhaps on account of want of a proper arrangement for distribution, and there should be some attempt made to encourage the distribution. My opinion is that some farmers do not wish to encourage the distribution of milk because it might be asked for nothing, or that there would not be any recompense expected, and they would rather not have people coming about their place at all. There

might be some system devised to encourage farmers to distribute the milk. I do not think there is an absolute scarcity of milk in Co. Down.

8320. Not in the actual possession of milk?—No.

8321. But in the view that it is not procurable in small quantities by poor people at certain portions of the year?—Yes.

8322. And in consequence they are not able to get a regular supply?—A great many of them are not. You might adopt a system of premiums. There might be some districts—very few districts—in which milk is absolutely scarce.

8323. But not in your experience?—I have seen it at a few districts, and in those districts I would say that there should be some authority having power to subsidise a respectable small farmer who might be induced to buy or retain a newly-calving cow, and he should guarantee to supply so many families; how to arrive at the quantity necessary would be a question for consideration. Perhaps if at the schools notices stating where it would be available, or if the information could be given through the Rural District Council, it could possibly be arranged to give a supply of milk—to distribute the milk.

8324. Do you think the people are really too poor to purchase milk for their children, or is it failure to appreciate its value as a food that prevents them getting it?—I think that, on the whole, people do not appreciate the value of milk as a food, and I think that, taking them as a whole, they could have far more milk out of their resources than they actually have at they valued it properly, and did not use the money for other things that are more expensive and not so beneficial.

8325. Have you any scheme in your mind whereby that knowledge can be disseminated?—I would suggest that some literary gentlemen who had experience in this matter should write a pamphlet on the subject, and that the value of milk should be taught in the schools.

8326. And at least get that knowledge into the minds of the rising generation?—Yes.

8327. Some effort should be made to cope with the difficulty and meet the necessity?—Yes. I cannot just go into the very minute statistics; but I would say, roughly speaking, that milk is as cheap as other foods, and I would say cheaper having regard to the value. I think that it is too cheap for profitable production.

8328. The milk trade is a very exacting occupation, and a man must attend regularly to it, early and late, and it is a seven-day-in-the-week job?—Yes. My experience is that during the last ten years there has been a great improvement in the milk production, so far as I am observer. I think there is a great improvement in regard to cleanliness and in the health of the cattle, and a greater regard for the laws of hygiene.

8329. In having milk produced under healthy and hygienic conditions?—I think so. Developing that idea, I do not think there is a necessity for anything more at the present time.

8330. You do not think there is a need for any extension of Orders at present existing dealing with the milk trade?—No.

8331. You are rather in favour of a scheme which would facilitate distribution and render it available at all seasons of the year?—Yes, and increase it. I am not what you would call an expert in the bacteriological view of this matter, but my opinion is, that we have not got definite conclusions to enable us to deduce any proper standard. The evidence seems so contradictory at the present time we cannot base legislation on it.

8332. You do not think it would be wise to legislate on the results that have been achieved so far?—No. I think the old axiom that "Cleanliness is next to godliness" is as far as we can go. I have read the evidence of certain gentlemen given here, which stated that the only standard of cleanliness should be the bacteriological. I think that is absolutely impossible unless you had a veterinary surgeon at every milk can, and it would be impossible to have milk into the city in time for breakfast if the bacteriologist must test each milk can or milk supply.

8333. Have you considered any scheme whereby it would be possible to ensure the distribution of milk—

what would you think of a scheme that would empower the District Council to guarantee to a certain farmer in the district an outlet for a certain quantity of milk at a fixed price, which would be paid him by the District Council, provided he distributed over a large area prescribed by them?—A rural area?

8334. Yes; half of the cost to be borne by the purchaser and the other half to be provided either by a subsidy from the State or some other means.—Well, I think until a clear case was made out for the necessity I would not be in favour of it, and the making out of that case might involve a good deal of doubtful manipulation. By doubtful manipulation I refer to the chance of various forms of influence in have cases of necessity worked up in order to obtain contracts. Whereas in the small-man scheme there would be less influence, and the necessity for each contractor would be more easily shown. There would be less room for favour in the sense of helping to make a man out of the strengthening. Of course, where, for instance, a clergyman, no matter of what denomination, would write a letter expressing the necessity, then I would say it would be the duty of whatever Authority you set up to take action.

8335. It could not be done in an isolated case. It would only be done to deal with a general necessity, because the expense would be too great to warrant its being taken up in small districts or in a limited way?—I would object to it then if a contractor is to be set up in every rural area.

8336. Do you think it would be democratising?—Yes, and also that it would lead to a great many difficulties, and a great many objections. With regard to the person selected for the distribution there would be a great deal of criticism, and I do not think the scheme would be as workable as the small-man scheme in County Down.

8337. Tenders would be invited to supply milk at a fixed price to be determined by the District Council, just as they receive tenders for the supply of other articles for the administration with which they are entrusted?—Would you entrust a farmer with the distribution?

8338. Certainly. The farmer would be obliged to distribute over a given area, and the object of that would be to obviate the hardship and inconvenience caused to people walking on a wet day a mile or two miles for the purpose of procuring a quart of milk.—And you would have a certain fixed standard of the quality of the milk?

8339. Yes.—I do not think I could have any objection to that, but I do not approve of it as the best scheme in most districts.

8340. Do you think there is a general necessity in the district in which you have experience demanding the establishment of such a scheme? What I want to get from you is—the evil that exists of sufficient magnitude to warrant this expense being placed on the public funds?—I do not think that the expense of your general scheme is, but I think a modified scheme that I would propose would be suitable.

8341. I would be glad if you would develop your scheme?—Take the County Council, or whatever body would be an authority.

8342. Take the smaller body—the District Council?—Yes. If there is a necessity let them advertise for somebody who would be willing to supply; let them select whoever they think is best, and give a premium to a man with a couple of cows to assist him to buy his cows.

8343. A premium?—Grant him, say, £3 per head if he keeps two cows. Grant him £3 to help to buy these cows, and let him pay the rest of the money himself if he would guarantee to distribute the milk in certain areas. I do not think that would involve very much difficulty. The money for premium could be retained till end of season as a guarantee of fulfilment of contract.

8344. You would be very largely in the hands of that individual. He might choose to evade his responsibility, and he might distribute the milk in a way that would not be advantageous to the general good?—I think that would hold in the other case as well.

8345. It could not hold in the other case, because the District Council would be the master of the person who undertakes to do a certain thing by contract, and if he fails, they refuse to pay him?—I would bind down the small man also.

8346. Your scheme would need a great deal of supervision by the officers of the Council?—I think the

ordinary officer who looks after the milk, the veterinary surgeon, who looks after the district, would be quite sufficient.

8547. It would lead to a multiplication of the number of people who would be engaged in carrying out the work. If, on the contrary, you were dealing with a large purveyor of milk, the difficulty of inspection and the cost of inspection would be considerably reduced, and if complaints arose as to his failure to distribute milk in a certain area they could be reported to the relieving officer of the district, who would at once report the matter to the Council?—I cannot agree that there would be more difficulty in one case than in the other, all things considered. For example, failure to distribute over the large area.

8548. It is a matter of opinion?—Yes. The first thing I would consider is the point of necessity, and then the working out of the scheme. As to the necessity, I would take the opinion of the medical officer of the district, and the relieving officer, and the District Council. When the scheme would be initiated, I would, of course, pay attention to letters of objection regarding cases of necessity. If the necessity were established something should be done.

8549. You think some scheme of distribution should be undertaken, and you have conceived the idea yourself that a premium given to small people to keep cows would be the most economic?—Yes, because the distribution from a large centre would cost a lot.

8550. There is another difficulty with regard to your scheme—the want of a very limited number of cows most of necessity have a very small supply of milk. The small man might be deprived of a supply of milk in the winter season when the necessity for the supply is most urgent, whereas the owner of a large number of cows could arrange, if he had a guaranteed outlet for a certain quantity, to produce that quantity?—I must admit that, but I presume that the small owner is preparing himself for this necessity at the very time that the necessity arises. He would buy his cow, say, in November, and she would be in full milk, and would continue milking up to March. This would give a very fair guarantee of supply.

8551. Have you ever learned that invalids or others unable to look after themselves were unable to get milk, owing to poverty or difficulty in procuring it?—I do not know of any case where absolutely they could not get it, but I have known great difficulty being experienced. Of course, people are sometimes where there is a case of real sickness, and they make sacrifices of their own supply. But commercially there is a great scarcity on some occasions.

8552. Dr. Mortimer.—What is the price of milk in your district?—Three pence a quart.

8553. All the year round?—Practically all the year round. It might be a little cheaper in summer, but very little.

8554. Have you many Union cottages?—There is a good number. I cannot tell you the number definitely.

8555. How are they supplied with milk—do they get it from the farmers?—Some have goats, some have cows, others get it from the farmers.

8556. The goats of Co. Down, are they of the ordinary breed?—Yes.

8557. They do not yield a continuous supply of milk?—I do not think so.

8558. But they are helpful?—Yes.

8559. There is no downright want of milk?—No, but in some districts there is a great deal of inconvenience in regard to procuring it.

8560. That would be places where people are living a long distance from the milk?—In some cases the farmer does not want people to be coming who might not pay.

8561. Is the Dairies and Cowsheeds Order enforced in your district?—I am not an expert in regard to that. It seems to be.

8562. Mr. Winsor.—Are you speaking of Banfield or the Moss district?—My district includes Lismore and Newlands.

8563. You are acquainted with the whole centre of Co. Down?—Yes.

8564. So that your evidence represents more than your parish?—Yes. It represents Banfield, and includes a number of civil parishes.

8565. It has been suggested that in certain districts the farmer might deliver milk at the school buildings, and the children might take it home. Would that be preferable in your district?—So far as controlling the supply as concerned it would be all right, but how would you work the scheme?

8566. The CHAIRMAN.—What about Saturday and Sunday, when the children would not be at the schools?—It is a very good idea for controlling, i.e., for bringing the milk within reach of a great number who would not otherwise get it. I could not allow the school buildings to be used for the purpose, but the distribution might meet the children outside the school.

8567. Mr. Winsor.—I suppose you include the town of Banfield as one of the places where necessity exists?—In the town of Banfield milk is fairly scarce during the winter.

8568. Why I ask about the town is because we have definite evidence of a scheme whereby farmers send milk to a depot in small towns, and the people come to the depot to take their supply, at a price which leaves a profit to work the scheme?—That would not apply to Banfield. It would not be necessary. The difficulty would be more in the country.

8569. So that in your district it is a question that affects the countrymen?—Yes. I am speaking of a large area of County Down, from Bellmish to Downpatrick, and here and there in rural districts near Banfield.

8570. In the event of an improved variety of goat being brought into the country, producing double or treble the quantity of milk that the Irish goat gives, and milking during the winter months, would that go some distance towards settling this question?—I cannot say that. It is a question I do not wish to touch on. It might possibly.

8571. Mr. O'Brien.—Talking of your scheme, you would give premiums to small farmers to help them to buy cows?—Yes.

8572. Do you not think that the whole principle of giving premiums to people is a little dangerous, and absolutely demoralising?—I do not think so. It is a system that was adapted when we were at school, and it runs through life. It is an encouragement.

8573. You think it would enable those farmers to buy cows which will eventually pay?—Yes.

8574. It is not a subsidy?—No.

8575. Do you not think it would be better if the money for these cows were borrowed from a co-operative credit bank, or something of that sort, so that the man is more responsible than if he were given a premium with no penalties attached, supposing his cow died?—I do not think so. You would not get him to undertake the responsibility; you must encourage him to do it. I would not give the premium till March or April, when the contract would be fulfilled, and only if properly fulfilled. There would be a penalty in a certain sense.

8576. Are you a school manager?—Yes.

8577. Would you be in favour of allowing milk, say, half-a-pint of milk, to be distributed amongst all the children at mid-day when they get out for half-an-hour?—You will have to develop the question a little more. Do you mean free distribution?

8578. No. I was talking to you as a manager of a school, as to whether you would allow milk to be brought to the school during the luncheon half-hour?—I would not allow the school to be used as a depot.

8579. The milk would be brought during the luncheon half-hour for the use of the children?—I think it would be a very good idea.

8580. In my part of the country down South, children walk a mile, and sometimes a mile and a half, to school, and the luncheon children bring, perhaps, a piece of bread, they have no sort of drink, and no place where they could purchase any milk, and they leave lessons from the morning until 12 o'clock, and then there is half-an-hour for luncheon, and they have to go back to school and study till 3.30, and they have to do that with practically no food?—We have improved on that, I think. The school children in my parish bring a fairly substantial lunch, I think; but the milk would be all right. The question is where is it to be got.

8581. We went into that question, and we came to the conclusion that it was important that the children should get once during the day half-a-pint of milk. We went into the particulars of the thing, and we found that we could sell milk to them, giving them half-a-pint a day, for twopence for the five days of the week that they were at school. But it was found we should have to supplement the amount by a small sum. Every labourer or small farmer should contribute twopence per head per week for the milk for his children, and we found that these farmers or labourers who had not children of their own were

willing to contribute, through the National Health Association or some other body, a small sum to pay the difference. Our difficulty, however, was that the school manager refused to allow it to be done at the school. He said that it would interfere with the leisure of the teachers, and also it would upset the arrangements of the school. Would you object to it yourself?—I could not object to it from that point of view. Would the teacher give the milk out?

8282. The milk was to be brought down by whoever was selling it—the supplier had to take it down to the school at luncheon time, or the milk might be taken from the creamery, and the children should have their own mugs at the school for the milk?—And the milk was distributed at the school porch?

8283. Yes?—I do not think I could object. There might be some other difficulty, however, especially in large schools.

8284. There might be some trouble about the washing up of the mugs?—I would not object myself to that; to make the children wash up the mugs would be a useful thing. I would like to speak with regard to the milk coming into the city. I think that at the railway

stations there should be special depots, kept specially clean, to facilitate the transit into the city, and I think, also, even that there might be a possibility of arranging a means of cleansing the vessels at the depots.

8285. The CHAIRMAN.—There is a large trade sending us milk from your district into Belfast?—Yes. There would be more from the previous parish I was in. There should be special accommodation at the stations, such as a special shed and hot water. I also wish to say that I do think that, in my opinion, we can go too far in regard to regulations for the management of the milk traffic. If you imagine every cow-lane a laboratory and every milk-server to be an analyst and expert, you can go in for a good many things, but if we wish to run the milk on a commercial basis we must go mostly on the standard of cleanliness I quoted above, i.e., the sentimental, not the bacteriological standard.

8286. You could not move in advance of the times?—No. I think we would be moving in advance of the times if we went any further than that, and adopted the bacteriological standard.

Reverend W. WILKINSON CHAIRMAN.

8287. The CHAIRMAN.—You are a Presbyterian clergyman resident at Newtownards?—Yes.

8288. And you are vice-chairman of the North Down Agricultural Society?—Yes.

8289. And you have been interested in the breeding of cattle up to a certain period?—Yes.

8290. You have formed an opinion, I take it, with regard to the lines on which cattle have been bred at the present time?—Yes.

8291. Do you think the present scheme is conducive to the production of a good milking stock?—I don't think that at all. I will tell you what I have heard from the farmers in my district. There are about a hundred farmers in my congregation, and I know that every year they are more and more disinclined to breed from shorthorn bulls at the present time.

8292. Is it because they believe they are conducive to the production of stock that is diminishing the milk supply?—Exactly. The first cross, I have heard again and again, of the ordinary prize-winning shorthorn bull of the present time produces a distinct diminution in the milk yield, and the second cross is often more remarkable in this respect.

8293. Have you heard any suggestion as to what cross would be likely to produce better results from this point of view?—Well, I don't know. The main suggestion I have heard is that the idea should be carried through of breeding milk-producing shorthorns. I suppose several men would be of this opinion, that the best animal is the shorthorn, if you can get the cow to milk, but on the lines on which bulls are selected for premiums there is never any consideration as to whether there is milk in the strain. Very possibly when the seller of a year old bull says that the dam is a good milker, he means by that she is the least bad milker in a bad milking strain.

8294. Would you think it desirable that records should be kept in the shorthorn pure-bred herds, and that when a bull is offered for sale it should be made a condition that the person offering the bull for sale would state what the milk record of its dam had been?—Most certainly.

8295. That would be a beginning, although it would not be quite an ideal scheme, because you would like to see the record of the dam of the bull?—Yes.

8296. That would seem to be the first direct step?—Yes, I would agree with that. I have far more faith in going back into the records for two or three generations than taking the sire or dam, and I think the old breeders were inclined to go back many generations.

8297. We can hardly do that at the moment?—I know.

8298. We have to make a beginning?—Yes.

8299. And the usual instrument offered is that the sire was a prize-winner in England, and that the dam was also a prize-winner?—Yes.

8300. Without any reference whatever to the milk-producing qualities of a strain?—That is true.

8301. I am rather inclined to think that the tendency in the production of shorthorns in recent years has been for the conformation of the animals, without any regard to its milking properties?—That is perfectly true in the North of Ireland. There is a type of

shorthorn that you know at once has no milk in the strain.

8302. And if you yourself were buying a beast for the production of milk you would not invest in one of that particular strain or type?—Most certainly not.

8303. It is only right to remember that those who are administering public funds for the benefit of the entire country are obliged to look on this question from a wider perspective than the Commission or yourself?—That is admitted.

8304. Would you be in favour of the suggestion made by a previous witness to introduce an Ayrshire bull to cross with Irish cows?—To an extent, but not altogether. I am afraid our farmers generally want a large-sized animal, and you would not get that from the Ayrshire cross.

8305. Now would you be likely to have an animal carrying flesh?—No. I find there are some dairy farmers in my neighbourhood who would rather have a moderate sized cow that would give them a great deal of milk than a larger cow that would give a smaller supply.

8306. I have in my mind at the moment the animal produced by that cross. I take it that a number of you dairy farmers keep their cows as long as they keep healthy?—Not those who provide milk for the city, but the other farmers who produce butter would come under your description. I am only seven miles from the city of Belfast, and the larger farmers are all dairy farmers, sending their milk half-way to Belfast, where it is met by the carts of the dealers from the city, and these dairy farmers never breed a calf from their cows.

8307. You do not think that is an economic way to utilise the cows?—No. There is a townland within three-quarters of a mile of my house, and in that townland there are four or five dairy farmers. They bring into that one townland about two hundred cows every year, the best they can get in the market of Belfast; they milk them for about nine months, and three would not be five of them kept to produce a calf again. If they were old cows I would not object so much, but they are cows in their prime, from four to seven years of age. You accordingly lose the possibility of getting good milking better calves from that whole stock of cattle. That goes on for every nine months in the year, and the dairy farmers tell me it is more profitable to sell these half or nearly fat than to keep them on for the months in which their milk would not be available, and I would suggest that that is one of the great causes of the deterioration of our milk cattle. These dairy farmers tell me that they cannot get to-day the cows that they got fifteen or twenty years ago.

8308. The stock has deteriorated?—Yes, even remarkably in the last ten years and much more remarkably still within the last twenty-five or thirty years, and they attribute that to two causes—partly, but only to a small extent, that there was a good deal of export of dairy cows to England and Scotland, where larger prices could be obtained; but they attributed it chiefly to this, because these dairy cows are lost as far as reproducing dairy cows goes by their calves is concerned; and I would like to suggest that the best thing that could be done would be to devise some scheme by which every

dairy farmer would be induced, or even compelled, to select out of his stock, say, one-third or one-fourth of the best milk-producing animals he has, and that you should purchase for a neighbourhood like that I mentioned to you a bull of a milking strain. I would provide a bull for that neighbourhood, preferably the Red Lincoln, and I would give each dairy farmer as much as would compensate him for the loss of three months' milk when the cow would not be so profitable. It would not take a large sum, so he would not need to feed his cow so heavily; she would always be giving a little milk; the cost of feeding would be less, and he would have a calf, and the calves in our neighbourhood are worth about £2, and they would be worth a good deal more of properly bred, and I don't see that this Commission could do a greater service than in some way or other providing that these cows are not to be slaughtered off in this way, and not leaving any produce in the shape of calves.

8609. There is no doubt about the immense wastage going on by the slaughter of animals at the period of their term when they are most profitable from the dairyman's point of view. With regard to the Red Lincoln breed, of which you spoke, we had evidence at the Dublin Biltzings that their reputation is largely due to a particular herd, in which records are being kept for a number of years?—I know the herd well.

8610. And which were recorded out, with the result that they have bred very dairy milkers, and now they have arrived at a standard which is considerably in advance of the average of that district. The application of that system seems to be one that would be likely to improve the milk of all breeds of dairy cattle, and would you think it possible to devise a scheme based on these lines, breeding only from cattle that reach a certain standard of milk production and from bulls of a milking strain?—Certainly. By selection you can increase any quality in any live animal, and you can bring in any characteristics you want. That is proved in the poultry world. I think that in the case of the bull calves, except the dam was a very remarkable cow, I would not be very much in favour of keeping them.

8611. You would not be in favour of establishing a breed of bulls with these characteristics?—I would not like the first cross so well, but would rather wait for further breeding.

8612. That would postpone the results for a time?—Yes. With regard to the better calves, I should say that these calves should be registered, and that being registered they would be more valuable, and, if necessary, you could subsidise to a small extent the production of these calves. That would be the most important requirement in this country at the present time.

8613. With regard to the distribution of milk in your district, I take it that there is plenty produced in it; but are the poorer classes able to secure a supply continually?—Yes, we have quite a number of people who keep a small number of cows, and we have one dairy in the town with thirty or forty cows.

8614. So that you don't think any difficulty exists about poor people being able to secure a supply of milk?—I don't think there is any difficulty. These keepers of three or four cows are very common.

8615. But the ordinary dairy farmer does not care to sell milk retail at home?—He does not do it in the neighbourhood between me and the city of Belfast; he sends it all to Belfast.

8616. Does that lead to any difficulty in the supply of the district where all the milk is sent away?—Not the smallest.

8617. There is still a sufficient quantity left?—Yes, one of these dairies in the place has considerably over one hundred cows.

8618. Do you consider it helpful to the scheme we were contemplating, and to the scheme that was undertaken a couple of years ago by the Department, for the establishment of an improved milking breed, to have prizes offered at the shows for bulls or cows that have been selected, independent of their pedigree or breeding?—I should say it would be if you get them of sufficient size and quality, otherwise I would not take an inferior animal.

8619. All these cows in the Department scheme have reached a certain standard of perfection; they have all been inspected before registration; and don't you think it would be helpful if a competition were established, and fairly substantial prizes offered at local shows, in order to direct attention to the fact that such a scheme was in actual operation?—Certainly it would be most advantageous.

8620. Would you advocate giving even more substantial prizes in the first instance to animals of that class, in order to subsidise indirectly the people in keeping them and trying to secure them?—I would consider that most advantageous also.

8621. Have you any experience as to whether or not the milk-producing quality of the cow has deteriorated or improved—the feeling amongst your parishioners would be rather that it is on the down grade?—That the whole quality of the cow is on the down grade; they cannot get the same class of cow as they did even ten years ago.

8622. Now, with regard to lands required for attending to these dairies, have you heard any complaint as to difficulty in securing suitable people to engage in this occupation?—Not more difficult in securing them than in securing agricultural labourers of any kind.

8623. Of course, the young boys grow up with a knowledge of attending to cows and learning to milk, and grow into men who are engaged in that occupation?—Yes, and the wives of a great many of the labourers come at three or four o'clock in the morning, and come again in the afternoon when the second milking takes place. This supplements the income of the household.

8624. And it helps them to provide comforts that would not otherwise be available for their families?—Yes.

8625. You told us that the greater part of the milk was sent to Belfast by road rather than by rail?—Yes, from our immediate neighbourhood.

8626. Do you think that sufficient care is extended in order to secure the cleanliness of the milk in transit?—I think so. I have often seen them transferring the large milk-cans, which are carefully packed, from the milk-carts of the producers to those of the dealer in Belfast.

8627. They don't change the milk from one can to the other?—Not so far as I know.

8628. Is there any other general aspect of the case, Mr. Wright, to which you would wish to direct the attention of the Commission?—I don't think that there is any other aspect of the case that touches the neighbourhood in which I live. I have been a kind of spoiled farmer myself, and have always taken a personal interest in the question of farming, and I have inherited that taste, because my father was a breeder of cattle.

8629. Your experience extends outside your own immediate locality. Have you heard of districts in which milk is not procurable for money?—No, I have not heard of such districts. The only other thing I would like to mention is what one of our large dairy farmers said to me the other day, when I told him that I might be able to come to this Commission to which I had been invited, and he desired me, on behalf of the farmers generally in the neighbourhood, to ask you to do something in the matter of securing the purity of cattle foods for farmers generally. His idea is not that you should interfere in the sale of cattle food, but that it would be a great advantage if there could be greater security in the purity of the feeding. He mentioned to me what difference it made to buy the material and mix your own food, which would be superior to any of the foods on the market.

8630. I am afraid that it would hardly come within our terms of reference. It is a collateral issue, but what I would suggest is, if your friend has any reason to doubt the feeding stuffs that are offered to him, that he would get into communication with the Department, and have them analysed, to see if what he is getting is really what it purports to be?—I told him that myself. He said, "you know what the farmer is; he will not take the trouble."

8631. He does the starchy part of the work himself; but there is another part of the work which is less laborious, in which he is less disposed to engage?—He would like the Government to see to that.

8632. Dr. Mossman.—Have you come to any conclusion as to a utility breed of cattle—a breed that would be useful for milk and beef?—I have often thought of that subject. I suppose a cross between a pure short-horn bull of a good milking strain and an Irish dairy cow would be the nearest approach. They call them half-bred cows, but they are not half-bred.

8633. Is not that breed getting very scarce?—Yes.

8634. They are exported as a matter of fact?—They are exported. I think that cross would be as near as possible.

8635. Have you tried that?—No. I had a pure short-

been cow that gave twenty-five quarts of milk a day, and milked within a few weeks of her calving again. I had three daughters of that cow and two grand-daughters. The first daughter was a fair milker. The second daughter was also a fair milker.

8626. Mr. O'Brian.—By what sort of bull—I had to take whatever pedigree bull I could get. I bred "Lord Scarbo." I also bred "Silver Thorn," which was sold for 800 guineas, from the same cow. The third calf was bred from "Miss," a famous bull of Lord Lovat's. That was a beautiful cow, smaller in size than the dam, but which could not feed her own calf. I had two grand-daughters of the same cow that was such a fine milker, and I got rid of them, because I could not get as much milk as would supply my household.

8637. The CHAIRMAN.—The law of heredity was not clearly borne out in that case?—No. It was, perhaps, exceptional, or through the bull. It was a very disappointing result. It might have been that the bulls were not of a milking strain.

8638. That rather demonstrated the necessity of having a milking strain on both sides?—That is exactly what I want to impress upon you.

8639. Dr. Macan.—You always kept this cow to a pure-bred shorthorn bull?—Yes, and I got up to 40 guineas for her bull calves. She paid me remarkably well.

8640. Is milk pretty general in your district?—Yes.
8641. Have you any Union cottages in your district?—Yes.

8642. How are the occupiers of farmland?—I think very well. I never heard any complaint.

8643. How do they get their milk—do they get it from the farmers?—I think so, but the farmers are rather disinclined to supply milk now.

8644. The labourers don't keep a cow?—I have known only one or two.

8645. Are there any gaits in your district?—Very few. There is a district between where I live and Bangor, and there is a considerable number of gaits there.

8646. The ordinary Irish goat?—No, the goats of Lady Dunleath, who is a neighbour of mine.

8647. These are very useful animals—the improved breed?—Yes.

8648. They milk all the year round?—I don't know that. There are a good many half-breeds.

8649. They are mostly hardy?—Yes.

8650. Mr. Wainman.—I would like to know if you can give us any idea of the difference in value from the dairyman's point of view of the method which he now adopts of killing his cow, and the method which you recommend of giving him a little premium to encourage him to keep the cow on?—I put that question to a very intelligent dairy farmer, and I can give you his idea on the subject. His idea was that something should be given that would cover fairly the chance of having the cow making up the loss, and my own idea would be to give £8. The dairy farmers are sufficiently alive to their interest, and if you get a dairy farmer who has fairly come to keep over twenty of these cows he would have ten of them calving in one quarter of the year, and ten of them calving six months afterwards, so that he would not have the whole trouble of the loss of his milk at one time. The farmers say that it must mean getting more land or keeping less cows. They want what will bring the cows through.

8651. The premium you suggest is £8 per cow?—Yes.

8652. With regard to the milk record question, I think you said that the farmers in your district do not keep records?—They never weigh the milk. It is measured mostly by the quart.

8653. They keep no record—the farmer could not say precisely what the cow would give?—No. He could give you an estimate that is fairly accurate.

8654. Have you ever checked such estimates with places where the milk record is kept?—He would not tell you exactly, perhaps, how many quarts of milk the cow yielded.

8655. The reason I ask you that question is that the experience of those who have kept records has been that the very cow that the ordinary farmer would select as the best milker was not the best milker?—That is strange.

8656. That is the remarkable thing about the keeping of these records—that the cow giving a small but continuous supply of milk is more profitable to the farmer than the cow that gives a big supply for a short period?—A dairy farmer told me that he had one or two cows that gave an enormous yield of milk, but did not keep it up, but that they were not so profitable as the cow that gave a smaller supply, but gave it longer.

8657. Obviously one of the great difficulties in such a linking any general system of milk records in this country would be the fact that the cows are killed?—Yes.

8658. With regard to the pedigree shorthorn milk records, is not there this great difficulty to be overcome, that the pedigree shorthorn breeders are in the habit of rearing their young calves upon the dam, and consequently there is no possibility of taking the milk record of that dam?—I think that the system of rearing on the dam spoils the milking quality, and my own impression with regard to shorthorns is that they are so far gone that it would be difficult to restore them. That is what I am very much afraid of, that you have lost about them so much to be beef producers that it is almost impossible to restore the milking qualities of them at the present time.

8659. The CHAIRMAN.—Is there any co-operative society of farmers in your district?—No.

8660. Did they ever try to start one?—No.

8661. I asked that in view of your question about cattle feeding?—Yes. They would like that in the neighbourhood pure materials would be used.

8662. Mr. O'Brian.—I suppose you consider that the farmer who wants to keep on his cow and breed from her, or whom you wanted to induce to do so, would not consider it a sufficient inducement that he is breeding a stock of cattle with a pedigree for milking that would increase the value of his calves—both heifer and bull calves?—I am sure he would in the long run, but not in the meantime.

8663. He would rather strive to get his £8?—That is my own figure.

8664. It seems to be a kind of spoon-feeding?—You will never get them to start unless you give them an inducement of that kind.

8665. The CHAIRMAN.—You cannot expect him to be a philanthropist?—No. You might get an increased price for animals such as I have endeavoured to make out that you can produce by the Shorthorn or Red Lincoln, but that profit is too far off for the farmer. I induced some farmers in my neighbourhood to keep some pure shorthorns, and they have done remarkably well; but the great bulk of the farmers will simply breed cattle that will bring the ordinary market price.

8666. Mr. STEWART WAINMAN.—When you spoke of the deterioration of the cattle, you spoke of the quality of the milk, not the quantity?—I think the farmers also believe that there is deterioration in quality.

8667. Have the farmers an idea that the quality of the milk is not as good as it was?—I think they have that idea.

The CHAIRMAN.—Thank you, Mr. Wright. We are very much obliged to you for your interesting evidence.

Dr. SAMUEL ANDREW, M.A., examined.

8668. The CHAIRMAN.—You are Medical Superintendent Officer of Health in Lurgan?—Yes, in the Lurgan district.

8669. I shall not take you over the ground already traversed by your Veterinary Inspector and the Clerk of the Council with regard to the provisions made in your district for the carrying out of the Dairies and Milkshops Order. We are familiar with the arrangements, and it is not necessary to question you with regard to them. Would you be in favour of licensing dairymen?—I would be in favour of licensing all purveyors of milk in the urban districts.

8670. Would you make it universal?—Only in the urban districts. It might be limited to large towns. Outside the urban districts I don't think it would be

convenient to do so.

8671. The evidence that has been put before the Commission up to the present would seem to indicate that the dairies in the districts outside the urban areas are the dairies that need the most care and attention. It has been stated, in regard to the milk sent into Belfast from the outside districts, that the samples show a far higher percentage of poor milk than in the case of milk produced within the city?—The granting of licences to purveyors in urban districts would not interfere with the administration of the Dairies Order in the rural districts.

8672. I don't suggest it would; but if it would be a benefit in urban districts why would it not also be

a benefit in rural districts?—Take Lurgan, for instance, we have a very large number of dairymen both in the town and outside, and it would be a great advantage to us if we could come down upon some dairymen who were very unscrupulous as to the manner in which they kept their premises or supplied adulterated milk, and be able to stop them supplying the milk within the town; but I don't think business would be of the same value outside.

8073. Of course, that is controversial. Do you think that the position occupied by the Medical Officer of Health in an urban district is entirely satisfactory?—I don't think it is.

8074. What change would you suggest?—I think the present arrangement, by which the Medical Officer of Health is practically ousted from all interference in the management of the Dairies Order, is very undesirable. Under the new Order—the Veterinary Inspectors' Order—that was recently issued by the Local Government Board, everything connected with the administration of the Order, as regards the cleanliness and purity of the milk, and freedom from contamination, was given over to the Veterinary Inspector.

8075. You think that would be more properly and efficiently discharged by the Medical Officer of Health?—Yes, and it was the condition that practically existed in Lurgan up to the new Order.

8076. You think that does not conduce to the efficient administration of the Order or the accomplishment of the purposes for which the Order has been drafted?—I do, sir; and I think also that it would be much more satisfactory if the Medical Officer of Health had his proper status in the control or management of the Dairies Order, because the importance of a milk supply to a community is one of those things that requires the supervision of a Medical Officer of Health.

8077. You have had some disagreeable experience in regard to an outbreak of infectious disease in your district?—Not exactly in my district, but in an adjoining district. All the patients came to the Lurgan hospital.

8078. You are familiar with the circumstances of this outbreak?—Yes, perfectly.

8079. And you consider that the disease was directly traceable to the milk supply?—Yes, and originally to the employment of a carrier on the premises; but the really important factor in the dissemination of that outbreak was the fearful state of the premises occupied by the dairymen. The water supply was very bad, and everything connected with surroundings lent themselves to an outbreak if there was a spark lit at all.

8080. And they had the bulk of all predisposing factors in the presence of a disease carrier?—Yes.

8081. Are you familiar with the Widal test?—Not except by reading about it.

8082. What is your opinion of it; do you think that it is satisfactory?—I think, in the first place, it would be almost impossible to apply it generally. The test gave positive results when there was no danger connected with the subject. There is no danger except when the subject is a carrier, and to find out that the subject is a carrier would entail more trouble and inconvenience than the subject would submit to.

8083. So you don't think it would be practicable to carry out the application of the test in a general way; but would you approve of having the power vested in the local authority to insist that all those engaged in a dairy in the handling of the milk, who were at least open to the suspicion of disseminating disease through the milk supply, should have the Widal test applied to them?—If I was able to trace a possible or probable connection of an outbreak of disease in my district to a dairy, I think I ought to have power to apply the test to all those connected with the dairy.

8084. That is exactly what I want to know. You think that would be desirable in order to secure and safeguard the public health?—Yes.

8085. Is there any other general view of the case, Dr. Agnew, that you would wish to present to the Commission? I see that you are in favour of having all dealers in butter-milk registered?—Yes. Under the 1906 Order was issued all these were registered.

8086. Would you apply the terms of the Order to all milk producers?—Yes. I think butter-milk requires as much supervision as new milk, especially as it is adulterated with dirty water.

8087. Dr. Macconnan.—Do you think that there is a clashing of the duties under the Dairies and Milkshops Order between the Medical Officer of Health and the

Veterinary Inspector?—I think the Medical Officer has been practically ousted from any connection with the Dairies Order beyond the granting of certificates.

8088. He is completely ousted from it?—Yes.

8089. Would you regard that as a very anomalous position, seeing that he is responsible for the health of the district, and that milk is very important from the health point of view?—Yes.

8090. What would you suggest in connection with that?—I would limit the duties of the Veterinary Inspector to the inspection of the animals and the conditions in which the animals are housed as regards their health. All the other duties that refer to the cleanliness of the milk and the purity of the milk, and the conditions under which the milk is produced, with the water supply and all sanitary matters, should be under the supervision of the Medical Officer.

8091. And they are not so at present?—No; that is in places where veterinary inspectors have been appointed.

8092. Now, with regard to the Widal test, do you think that persons may react who have not got the bacillus typhosus?—Yes. I never heard that the Widal test is only positive so long as there is any bacillus typhosus in the body.

8093. Do I understand you to say that a person who reacts to the Widal test might not convey the disease?—Yes, because the Widal test, after a patient has passed through the disease, is positive for some indefinite time.

8094. And it is only in a person who is a carrier that it reacts—if it reacts the person is a carrier?—I would not assume so. It does not prove that the person is a carrier.

8095. A person who reacts to the Widal test may be innocuous?—Yes, unless he is excreting the bacilli.

8096. He cannot react unless he excretes the bacilli?—Yes, he can. A certain change is produced in the blood thereby giving a positive reaction to the Widal test, and it simply indicates that a person has recently passed through an attack of typhoid fever; but then if one who reacts to the test is connected with the milk supply it might be necessary to find out whether there are any bacilli in his system—in the gall, bladder or the intestines.

8097. Your position is that the man who reacts to the Widal test might not have the typhoid bacilli in his system?—He may not.

8098. When physiological condition produces a reaction?—The altered condition of the blood.

8099. That altered condition could not do any harm?—No.

8100. What is the use of the test?—It shows that a person has recently passed through an attack of typhoid fever.

8101. The Commission.—So that a person reacting to the test is not necessarily dangerous?—No.

8102. That would seem to discount the value of the test considerably?—Yes.

8103. Mr. WILKES.—If there was an outbreak of typhoid in your district would you utilize the test until you found out the suspicious case?—Yes, and if we found a case that reacted I certainly would advise that the investigation should be pursued to find if he was excreting bacilli; but I would not use it as a general rule, and say that every person connected with a dairy should be subjected to the Widal test.

8104. What exactly is the difficulty you find in the carrying out of the Dairies Order by the Veterinary Inspector as compared with the Medical Officer?—In the first place, it is not really so satisfactory as the arrangement we had before in Lurgan. The importance of the relationship between the milk supply and the general health was established early in the nineties, and I assumed to myself the duty of looking particularly after the administration of the Order in Lurgan, and supervised the Dairy Inspector, and under the old Order we had ample powers under the Public Health Act to call in a Veterinary Surgeon whenever we suspected disease in the cattle, and in 1906 I got my Sanitary Authority to appoint a Veterinary Inspector at a fixed salary for the purpose of assisting in the examination of the cattle, and the conditions under which they were housed. I took vigorous supervision over the dairy inspection and the other matters appertaining to the cleanliness and purity of the milk, and we found that the arrangement worked most successfully. When the Order came into force I found to my surprise that all the duties which I had previously undertaken devolved on the Veterinary Inspector under the Order, so that he has complete control of the dairy inspector, and supervises the manner in which he does his duty. He looks after

everything that pertains to the cleanliness of the milk and of the vessels, and of those who are engaged in the milking, and such matters that really don't fall within the province of a veterinary inspector.

8705. Do you find the Order is less efficiently carried out?—The Order is not so efficient in our district, because up to 1908 we had a regulation requiring 800 cubic feet for each cow.

8706. I was thinking of the question of the administration. Is the administration less efficient now under the new arrangement?—I am of opinion that it is.

8707. Mr. STEWART WOODHOUSE.—You refer in your summary of evidence to "the adulteration of milk as permitted by the standard laid down by the Department of Agriculture and the necessity of withdrawing or modifying same." Is it that you consider the three per cent. standard of fat is too low?—No, but I think that it should be the minimum. At present the defendant in the case of a prosecution can swear that the milk was delivered as it came from the cow, when it is well known that it was not practically as it came from the cow. We had several instances of that; and my opinion is that you never get the mixed milk of a herd under three per cent. of fat. You may get the milk of an odd cow, owing to some circumstance, to come under three per cent., but you will never get that in the case of the mixed milk of the herd. When unscrupulous dairymen are brought into the court for selling milk under three per cent. of fat they say that the milk was sold as it came from the cow.

8708. How can you meet that difficulty?—I would not give the defendant the opportunity of giving evidence. I would exclude the condition that a penalty should not be imposed if it was sworn that the milk was sold as it came from the cow. I don't object to the minimum standard, but I would exclude the condition.

8709. You would convict him if it was below three per cent., no matter what he swore?—Yes. If it was below three per cent. it would very rarely happen that there would be a miscarriage of justice.

8710. Mr. WILSON.—We had evidence from the Glasnevin Farm that continually for many months together the mixed herd gave milk below three per cent. every morning?—I think the general experience is that only an occasional cow gives below three per cent. of fat.

8711. Would you not consider at a building that, if in a Government farm they should find that the entire herd was giving milk below three per cent., a man should be convicted of selling adulterated milk merely because his cow failed to reach the three per cent. standard?—Yes, if it was a fact that the milk of the whole herd fell below three per cent.

8712. Is not there, in point of fact, a more reliable method of judging the quality of the milk—the French refractive index?—I don't know that. It was always considered until recently that the percentage of solids, not fat, was a more accurate and reliable test.

8713. Mr. O'BRIEN.—You would be of opinion that a prosecution should be instituted in all cases where the standard of fat in the milk was below three per cent.?—Yes, unless, as Mr. Wilson says, it has been absolutely proved on a Government farm that the fat of the milk of a whole herd would occasionally fall below the three per cent.

8714. You think the Government cow ought to be ashamed of herself?—I think so.

At a subsequent stage of the sitting, Dr. Agnew was recalled at his own request for further examination.

8715. The CHAIRMAN.—I understand you wish to add something to the evidence you gave before we adjourned for luncheon?—Yes.

8716. What was the particular subject to which you wished to refer?—I think the successful administration of the Dairies Order will never be thorough until County Medical Officers of Health be appointed who will supervise all sanitary administration in the county, and be entirely independent of private practice.

8717. You would advocate the appointment for each county of a medical officer to supervise the administration of the Public Health in all its branches?—Yes, and as administered by all the District Councils.

8718. And report to the Local Government Board?—To the County Council.

8719. Would you make it an appointment under the County Council?—By the County Council.

8720. I am afraid that would not be possible in the present state of the law. They have no jurisdiction with regard to public health?—I have always advocated the appointment of this officer, and I think most sanitarians have advocated it in Ireland.

8721. I am not quarrelling with the suggestion, but I am pointing out, as the law exists, the County Council could not undertake any such duties, because they have no jurisdiction under the Public Health Act. That is all vested in the Rural and Urban Councils?—I think if it ever became possible to make such an alteration in the law it would be very advisable, because the administration of the Public Health Act and the Dairies Order would be more efficient.

8722. The duties of the officer would extend over a large area?—Yes, and the officer should be thoroughly independent of private practice. There are similar appointments in England.

8723. The power conferred by the Local Government Act of 1908 does not confer such authority as you contemplate?—The Medical Officers of Health will never have sufficient backbones until there is a man over three independent of private practice.

8724. He would stand aside?—Stand aside and safeguard them, because they require to be safeguarded in the conscientious discharge of their duties.

8725. And your desire would be to make these new officers independent of private practice, in order that there would be no possibility of their being affected by local influence?—Yes. In my career I have derived an immense advantage from the influence of an Inspector of the Local Government Board backing me up and supporting me in the discharge of my various duties, which may be liable to bring me into conflict not only with the local authorities, but with my private patients.

8726. Dr. MACDONALD.—Is it your opinion that the public health is suffering from the want of such an officer as that?—I am decidedly of such an opinion. I believe that the backward state of sanitation is almost entirely due to that fact.

8727. You would have one officer for each county?—Yes. If the counties were small one officer might do for two.

8728. Who would be perfectly independent of every one?—Yes, who would be perfectly independent of private practice. There is another point to which I would like to refer, regarding the advisability of giving Sanitary Authorities power to go outside their districts to supervise dairies. I think if we had the same powers as exist in Scotland it would be sufficient. I don't think it would be right to have dual control over dairies such as some persons wish for. I think no examination should be made without consultation with the outside authorities, as it is done in Scotland.

8729. The CHAIRMAN.—I will point out what that will lead to in Antrim. At the present time the Antrim District Council hold that they are putting into operation certain provisions of the Order; but what some would regard as the most important elements of the Order are not put into operation at all. Antrim sends a considerable quantity of milk into Belfast. The Belfast authorities say that they require authority to go into the districts from which the milk is sent into their district in order to ascertain under what conditions it is produced. Manifestly it is produced in Antrim under conditions that are less exacting than in Belfast, and if the Belfast authorities tried to impose on the cowkeepers in Antrim the conditions which obtain in the City of Belfast they would have no right or authority to impose them?—It would be much better if the outside authority could be compelled to administer the Order.

8730. You would aim at having uniformity?—Yes.

8731. And have each individual authority put into force all the provisions of the Order?—Yes.

8732. I agree?—I am satisfied that if the county medical officers were appointed that such could be easily done—that the outside authority would carry out the conditions of the Order as strictly as it is done in Belfast. Those outside districts have always had a bad example set by Belfast until the last three years.

8733. Their belief is that they have set an example to other districts?—I know I was often told that I demanded things to be done in my own district before the Order of 1908 that would not be asked for in Belfast.

I am very glad to hear that Lurgan is the pioneer of some reform.

Mr. JAMES L. CLARK continued.

8734. The CHAIRMAN.—You are resident in Antrim or the neighbourhood, I understand?—Yes.

8735. Are you engaged in agriculture in any branch?—No.

8736. Are you interested in the dairy trade in any way?—No.

8737. Is there any scarcity of milk in your district?—Not that I am aware of.

8738. No section of the population, however poor, finds any difficulty in obtaining a supply of milk?—I imagine the very poor might possibly find a difficulty in buying it.

8739. But it is possible if they have the money to buy it?—It is.

8740. Are there many dairy farmers in that district?—Two hundred and fifty-one persons have been registered as sellers of milk in the Antrim Rural District.

8741. Where do they find a market for their milk?—A number of them send their milk to creameries—the majority of them.

8742. Are there creameries in the district?—There are two in the north-east and of Antrim. A number of milk vendors sell milk in the town, and a number of the more extensive dairymen send their milk to Belfast.

8743. Are there many sending milk to Belfast?—There are a good many in the district adjoining the Belfast district.

8744. You hold an official position?—Yes, I am Clerk to the Antrim Rural Council.

8745. What provision is made by the Antrim District Council to put into operation the provisions of the Order?—They have a dairy inspector, and they also have two veterinary surgeons.

8746. How is the work divided between them—does the dairy inspector take the mechanical part of the work, such as looking after the cleanliness of the byres and sheds?—Yes.

8747. And the veterinary surgeons look after the animals?—If the cowshed has not 500 feet of air space they suggest improvements to be carried out.

8748. With regard to lighting and ventilation?—Yes.

8749. Do they make an examination of the cows to ascertain if they are in a healthy condition?—No.

8750. That is not part of the duty imposed on them?—No.

8751. Scarcely any reports have reached your Council as to diseased cattle amongst the dairy stock?—None.

8752. Then the only parts of the Diseases and Cow-shed Order which are put into operation, so far as your district is concerned, are those which refer to lighting and air, and ventilation of the cow-house, and the cleanliness of the people engaged in the milking?—Yes.

8753. Has any application ever been made to your District Council by the Belfast Public Health Authority for permission to send their inspectors to investigate the conditions under which milk sold in Belfast is raised in your district?—Not that I am aware of.

8754. Has no complaint ever reached you that the milk raised in your district was suspected to be a source from which an epidemic of infectious disease had arisen?—Not that I am aware of.

8755. Would you authority have any objection to have power conferred on local authorities, such as the Public Health Authority of Belfast, to send their inspectors into your district to ascertain the conditions under which milk is produced?—My Council consider that if the Belfast officials' and our officials' duties were overlapping, it would tend to confusion, and would be hardly workable.

8756. Do your Council consider that they are discharging their duties in regard to the administration of the Order when they make no examination of the cows to see that they are in good health and likely to produce sound, healthy milk?—I cannot say that.

8757. I suppose we are at liberty to draw an inference from the fact that they have not imposed that duty?—I suppose you must.

8758. What duties do these veterinary inspectors perform?—They inspect the cowsheds to ascertain that the space, light, and ventilation are in accordance with the provisions of the Order, and if they are not, they make recommendations and see that they are carried out.

8759. Does the Council support them in seeing that the recommendations are carried out?—Yes, and institute proceedings.

8760. And have convictions been obtained?—Yes, we have had two.

8761. There were on the question of light and air space?—Yes.

8762. Would your Council have any further objection other than that stated by you, that it would lead to overlapping and confusion if the officers of Belfast city went into your district to ascertain the conditions under which the milk is produced?—I have heard no other objection put forth. They might.

8763. If they had, it is unspoken?—It has not been put forth.

8764. And you have not heard any discussion on the question?—Well, I have heard a discussion, and the opinion was as I have told you.

8765. That it would lead to overlapping?—Yes, and confusion.

8766. Is there much butter-making carried on in your district?—A good deal. Two hundred and fifty-one persons have been registered as selling new milk, and I should say that the others all make butter in a small way—the small farmers.

8767. Is there no inspection imposed on the people engaged in butter-making there?—None.

8768. Is registration enforced against them?—No.

8769. Have your Council considered the question of licensing dairymen?—They have not.

8770. You yourself have not considered it?—No. I have seen it suggested at the Commission, but I have not considered it.

8771. And you are not prepared to express any opinion for or against it?—No.

8772. Has the establishment of creameries in your district tended to decrease the supply of fresh new milk available for consumption?—I do not think it has. The creameries have been established in backward districts, where I do not think that there would be much sale for sweet milk if it were not for the creameries.

8773. And would these districts be within a reasonable distance of Belfast by rail?—Well, there might be one or two of the larger cowkeepers who send their milk to Belfast, but few do from the districts where the creameries are.

8774. Are these districts remote from a railway station?—One is a good deal removed from a railway station—in fact, both are.

8775. And probably that had something to do with the establishment of the creameries in the district?—It might.

8776. Do you know if milk is sold retail in these creameries?—I do not know. I think the separated milk is taken home and used for feeding purposes.

8777. Is any sold for human consumption?—Not that I am aware of.

8778. Mr. O'HARA.—What are the names of these creameries?—Troughmore and Dunsane.

8779. The CHAIRMAN.—Do you know what price is paid for milk in these creameries?—No.

8780. Would your Council be in favour of having the provisions of the Order imposed on all those engaged in the home-dairying and butter-making?—I believe they would.

8781. They think the Order should be applied to the sale of butter-milk as well as sweet milk?—Yes.

8782. You would be rather in favour of a scheme that would provide for loans for the improvement of cow-byres and the establishment of milk stores?—Yes, in the case of small farmers. I have been informed that the effect of the Diseases and Cowsheds Order as that small farmers, when they find that the provisions of the Order are going to be applied to them in connection with the sale of their milk, will resort to butter-making at home, where there are less restrictions placed upon them, and, in my opinion, milk is in many cases collected for churning at home under unsanitary conditions. To remedy this state of affairs I think close supervision is necessary, and that in the case of poor farmers, say, under £30 Poor Law valuation, some financial assistance should be given them in the way of loans, repayable on easy terms, for the purpose of providing healthy cowsheds or milk-stores.

8783. What size loans do you refer to, because the Board of Works make provision for the advance of loans for the improvement of cowsheds on holdings of a reasonable size, dealing with a minimum application of £20. Do you contemplate smaller loans than £20?—I would contemplate loans from £10 upwards.

8784. Do you think that some people who would need loans would probably not be able to offer security for the repayment of large sums?—Yes; in some cases the small farmer might only want a loan of £15 to improve his premises or provide a milk room.

8785. Are there any shops in your district for the retail of milk—in the town of Antrim?—I know of none.

8786. How is the town supplied?—Milk-carts from outside areas. Of course, there are a few small cow-keepers in the town who sell milk in the town.

8787. At what price?—Threepence at present in Antrim is the retail price, and in the summer twopenny-halfpenny, and sometimes twopenny a quart.

8788. Does the same custom prevail in Crumlin and Handstown?—I think so.

8789. And there is no difficulty on the part of the inhabitants of these towns obtaining a milk supply?—None that I am aware of.

8790. And no complaints have reached you that the inhabitants have been unable to procure milk even if they had been able to buy it?—None.

8791. Mr. WILKINSON.—In regard to the question of outside powers of inspectors, are you aware that many of the English towns have got this power to go out into the rural districts in order to inspect the conditions under which milk supplied to their area is produced?—I was not aware of that.

8792. In fact, it is the usual thing, one might say, across the Channel. Would you not think that this would have some influence on the minds of the Council if they knew that this power was exercised?—It might, but they do not know how to work it.

8793. And from the point of view of the city authority, would you not consider it unfair to the dairymen working within the city area, that they should be compelled to produce milk under certain conditions, whereas their rivals who sell milk in the same area and produce it outside are not under the same restrictions?—I think it would be much better if the Council outside were led to enforce the Order.

8794. What authority do you picture to yourself that could compel the local authority to do that?—The Local Government Board have the power, I think.

8795. In the case of members of the Council who are largely engaged themselves in the trade, do you think that they would legislate against their own

interests?—In our district I cannot say that the members of the Council are largely interested in the milk trade.

8796. We are looking at the thing from the point of view of the general situation. Would you not agree that where the farmers themselves are in a majority in the local authority, it would not tend to very efficient administration of the Order?—I scarcely it might not.

8797. I see you have already expressed the opinion that the Order should be applied to those who make butter at home?—Yes.

8798. In other words, that any person engaged in the business of cow-keeper should be inspected and regulated?—Yes.

8799. Are you familiar at all with the system of Agricultural Credit Banks, at which small farmers obtain loans?—I am not.

8800. Mr. O'BRIEN.—Is your district a district of small farmers?—Yes. The majority of the district is composed of small farmers.

8801. I think you said there were two hundred and fifty-one registered sellers of milk in your district?—Yes.

8802. Is that including the creameries?—Yes.

8803. They must be small creameries, or is the whole trade in selling confined to the creameries?—The majority of the trade of selling is confined to the creameries. The larger owners send milk to Belfast, and a smaller retail in the town of the district.

8804. So far as you are aware, these creameries do not retail separated milk?—I do not believe they do. I believe all the separated milk is taken back by the farmers and used for feeding purposes.

8805. You know there is a creamery in Antrim that has a contract to supply some asylum with milk?—It is not in our district.

8806. Miss McNEILL.—How long is your dairy inspector appointed?—We had one before the Order of 1906—from about the year 1875 or 1870, under the old Orders.

8807. What are the qualifications that your Council regard as essential in a person who is appointed as dairy inspector?—He was a person conversant with the keeping of cows, and the method of keeping milk. He has no other qualifications.

8808. Had he been engaged in the dairy himself?—His father had.

Mr. ALAN LAWRENCE, J.P., examined.

8809. The CHAIRMAN.—Are you a member of the Antrim County Council?—Of the District Council.

8810. What view is entertained by your Council with regard to the Dairies and Cowsheds Order. Does your Council think that it leads to milk being raised and produced under conditions that are satisfactory from the public health point of view?—I think they do, sir.

8811. I understand from your Clerk that you have not put into operation the parts of the Order dealing with diseases amongst the stock?—There was a division of opinion in the Council—a good few objected.

8812. Did the majority object?—They overruled that at any rate.

8813. I hope there was a substantial minority in favour of doing the right thing?—I think there was.

8814. Is there any hope of the question being raised again?—I rather think it might be. I do not think we were well aware at the time that this is so necessary.

8815. Apparently it would not increase the expense very much, because you have already two veterinary inspectors appointed?—Yes.

8816. And it would seem that their time is devoted to doing work that might be more economically done by non-professional men?—We have a non-professional man too, who goes round in the first instance to see that everything is right, and if the air space in the byres is too small the veterinary inspector is sent for.

8817. And there would be no difficulty in the course of these visits in making an examination of the dairy stock in order to ascertain whether they were in a healthy condition?—None whatever, and a good many of the farmers would like it.

8818. What is your personal view?—I would like to have my stock examined.

8819. Are you engaged in the dairy trade?—I was, but I am not now.

8820. When you were engaged in the trade were you sending in milk to Belfast?—I was.

8821. And a good many of the dairymen in your neighbourhood are doing so?—There are, perhaps, six.

8822. What would be their view with regard to the application of the Order?—Some of them would object.

8823. Do you subscribe to the view that has been put forward by your Clerk that there is no scarcity of milk in any part of your district?—None whatever.

8824. You would have no objection, as far as you can see, to the granting of licences to those engaged in the dairy trade?—No.

8825. And you do not think any reasonable man carrying on a legitimate trade could have any objections?—I do not think so.

8826. Do you think that the working population at your neighbourhood provide a sufficient quantity of milk for their children?—As far as my own neighbourhood is concerned, I only know about the men who work for me, and they get milk from me, and have goats.

8827. There is no scarcity amongst them?—None whatever.

8828. Do you think the inhabitants of your district appreciate the value of milk as a food for their children?—I do not think so; but the children in my neighbourhood get practically enough of milk, because if they have not money to buy it they get it from the farmer.

8829. Is the milk part of their wages?—In some cases, and in other cases they pay for it.

8830. Some farmers will agree to give their labourers a pint or a quart of milk a day?—Yes.

8831. Others, if they do not agree to do that, will sell milk to them?—Yes. They either give the money or stop it out of their wages.

8802. What is your opinion as to the health of the dairy stock in your district?—I think it is fairly good.

8803. Have you heard of any losses arising from tuberculosis or kindred maladies?—Very few. I think there are very few cases of tuberculosis in my neighbourhood.

8804. Of course, your Council has never ordered the slaughter of any animal under the Act?—I do not know.

If they have no inspector appointed for the purpose it is scarcely possible.

8805. Dr. Mooneyham.—Have you many Union cottages in your district?—There are one hundred and fifty-one cottages altogether, and there is a scheme of fifty cottages in course of construction.

8806. How do the occupiers of these cottages get their milk supply?—From the farmers.

8807. As far as you know, there is no scarcity of milk in your district?—No.

8808. Have you noticed any deterioration in the quality or milk-giving properties of the cows?—Cows do not give as large a quantity of milk as they did thirty years ago, and they are not as good cows as they were.

8809. Are they as well fed as they used to be?—Yes.

8810. At what price would the sale of milk be profitable?—I was getting sixpence a gallon for it, and I had to pay a halfpenny to the railway company for the carriage in summer, and I got eightpence-halfpenny in winter. I think it was too little.

8811. The CHAIRMAN.—You were selling to retailers in the city?—To wholesale men. The railway companies get too much.

MR. JOHN McCLURE BERRY, M.B.A.V.S., continued.

8812. The CHAIRMAN.—You are a member of the Veterinary profession?—I am.

8813. And you hold an appointment as veterinary inspector to the Belfast and Castlereagh Rural District Council?—Yes.

8814. Would you be good enough to tell the Commission what provisions are made by these bodies for the enforcement of the Diseases and Contagious Order?—After the passing of that Order into force, I was appointed by the two Boards jointly to enforce its provisions in their District. The staff consisted of myself and a Dairy Inspector.

8815. For the two Districts?—Yes.

8816. Is the area you have to cover very large?—Yes—the two rural districts of Belfast and Castlereagh.

8817. Mr. WILSON.—Perhaps you would point out the boundaries of the two Rural Districts on the map?—I shall be glad to do so. (The witness then pointed out the boundaries of the two rural districts on the map.)

8818. The CHAIRMAN.—It is a very large area?—Yes.

8819. How many cows are kept in that area?—That is a thing that is continually varying, but as far as I can determine the average is about 8,200—that is in registered dairies.

8820. Is registration imposed in the district?—Since I have gone there it has been enforced as strictly as we could, and I have no reason to believe that there are any large dairies which are not registered.

8821. Do you find that the owners of these dairies are ready to conform with the requirements of the Order?—In some cases it has not been our experience. They would come to a certain point, but no further.

8822. But to bring them up to your standard is difficult?—Yes, and we have numbers of prosecutions.

8823. What co-operation did you receive from the magistrates bench?—It varied with the district. I have a list here of the prosecutions that have been instituted by the two rural districts, and I find the highest penalty was 20s. and 20s. costs against a dairyman who was prosecuted at Whiteabbey.

8824. For what?—His premises and cattle and their orders being dirty.

8825. Would you say that penalty was sufficient?—I would say that it was asking them to go on and do it again. It was absurd.

8826. Do you find things even more unsatisfactory in other districts?—In many cases the fines were only one shilling and costs; 2s. and costs; 7s. 6d. and costs, and in some cases we had to withdraw cases on payment of costs.

8827. The railway companies have a graduated scale for the carriage of milk?—Yes.

8828. You might send it fifty miles for the same money?—Yes.

8829. Do you think if you got eightpence a gallon you could have a profit?—I do not think so.

8830. Or twopenny?—You could have it at twopenny.

8831. You could live on that?—Yes.

8832. Mr. WILSON.—According to your knowledge of the district in which you live, has the enforcement of the Diseases and Contagious Order diminished the output of milk—have any farmers gone out of the business by reason of this Order being put into operation?—Not that I know of. I think there is one in Antrim town.

8833. It has no commercial effect on the milk supply?—Not in my neighbourhood.

8834. I suppose you get an occasional "pinner" in your neighbourhood?—Yes.

8835. What would you do?—Put them into a hole.

8836. Do they go into the Belfast market?—Not that I know of. My own way of dealing with them was to cut their throats and put them into a hole where I saw anything was wrong with them, and I think it is the most profitable thing to do.

8837. Have you suffered great losses in that way?—Only two cows, and I put them away.

8838. Mr. O'BRIEN.—You were selling milk to wholesale dealers?—Yes.

8839. What did you get?—Sixpence in the summer and eightpence-halfpenny in winter, and I had to pay carriage.

8840. Such penalties would certainly be no deterrent to others?—Well, not only that, but looking at the matter as a sanitary officer it seems to me that there is a certain type of man that you must closely supervise to see that his premises are clean, and if that man can save 20s. a week (a man's wages), he does not mind paying an occasional fine.

8841. They don't find any odium attaching in appearing in Court for breaches of this Order?—Money seems to be the only consideration in the matter, in my opinion. The publication of the cases seems to have no effect.

8842. Miss McNEIL.—How would a man like that dispose of his milk?—In the two districts which I speak of, the practice is 95 per cent. of the cases is that the dairyman produces his milk and sells it to a wholesale or retail man, who lifts it at his dairy premises.

8843. I need hardly ask you whether or not you would be in favour of licensing?—I would go further than that as the result of my experience. Under the provisions of the Order of 1900 the Local Authority is bound to register anyone who may make application.

8844. Regardless of the condition of his premises or character or anything else?—Yes, or we have no power, in the event of a place being kept in an insanitary condition. The only remedy the Sanitary Authority has is to take him to the Petty Sessions Court and fine him, and he can repeat the offence. If that man were licensed we could withdraw his licence after a certain number of offences, and in the event of his continuing in the trade we could take criminal proceedings against him.

8845. You would withdraw his licence in case of repeated offences?—Yes, I would not allow him to poison his neighbours. Of course, as it is, I would like to make it clear that I am dealing with extreme cases, but I am taking it that there is at least one of these cases in every rural district in Ireland, and your regulations must be sufficiently comprehensive to cover that case.

8846. The law should cover the greatest delinquents?—Yes. Speaking generally, the dairymen throughout my two districts have responded well to the Order during the past three years.

8847. Speaking of them as a body?—Yes. During the past three years numerous alterations have been made by cowkeepers.

8848. Have you had much difficulty in inducing those cowkeepers who were amenable to the provisions of the Order to undertake alterations that entailed considerable expense?—In some cases, sir. There are some parts of the district, unfortunately, poorer than others.

8875. The greatest difficulty arises in the poorer districts?—Yes.

8880. And there are some of the farmers very small?—Not so small, as I could gather from reading the evidence, as over the rest of the country. The average would be about twelve cows.

8881. And you would not have many with only three or four?—No. I find if a dairy has less than ten cows, the people would generally object.

8882. Would you apply the provisions of the Order to those engaged in the butter trade in home dairying?—I have been endeavouring to do so.

8883. Mr. WILSON.—Without authority?—Yes.

8884. The CHAIRMAN.—Would you be in favour of making it statutory?—I was of opinion that it is a matter of far greater import to the country, for this reason—sweet milk is removed immediately from the premises; buttermilk is gathered for at least five days and remains in surroundings sanitary or insanitary for that period.

8885. And is exposed to greater contamination?—Yes, because it is handled more, and we all know how readily butter can take a flavour or odour from its surroundings, as we say in the North, "the butter has a took," and I think for these reasons I should enforce the provisions of the Order with regard to the dairymen.

8893. With regard to the stock in your district, do you find generally they are healthy or otherwise?—They are healthy. Within recent years dairymen have found around the city that it does not pay to buy a second class animal.

8887. And they try to secure the best stock?—I would not go so far as that, but I would say that he buys the best class of animal he can afford; and the class of cattle in my district will compare favourably with any stock in any part of Ireland, except in the poorer part of my district, and it is improving.

8890. Have you discovered any suspicious cows amongst the herds?—Unfortunately, yes. The first assistance we got was the Order of the Department of 1910. Before that we had a considerable number of "peters," but we had no difficulty in getting rid of these cattle because when the people were told what was wrong with them they agreed to be as anxious as we to get rid of them. Under the terms of the provisions of the Tuberculous Order, we have been selling diseased cattle and paying compensation. During this present year I have seized two cows and slaughtered them.

8889. Did you apply the tuberculin test?—It was not necessary in either case.

8896. What is your experience of the test?—That it is unreliable, save when conditions are ideal.

8891. In case of suspicion have you applied the tuberculin test?—Yes.

8893. With what result?—Unsatisfactory, for this reason: the proper application of the test depends on three things—first, the condition in which you find the animal; secondly, the distance the premises are from your headquarters; and thirdly, your facilities for supervision. We will take a suspected case, say, at the limit of my district, nine miles from the city. That animal is introduced to-night. It is essential that you should be there and examine that animal at intervals of eight hours, that means four more visits.

8895. It would take practically two days in order to have the test applied in a really intelligent and practical way?—Yes. It is better not to apply the test at all unless it is done thoroughly. It is only misleading if you do not do properly and carefully.

8894. What becomes of the re-refusers?—The only Act of Parliament we have at the present time is the Tuberculosis Prevention Act, and unfortunately it only deals with dairy cattle affected with tuberculosis of the udder, so that we have no power to destroy or to apply the tuberculin test to a cow suffering from pneumonia or pleurisy of a suspicious nature; but we have had no difficulty, because the dairymen has been reasonable. The Tuberculosis Prevention Act should be extended to embrace all forms of tuberculosis in dairy cattle, as I am of opinion that tubercular disease of the lungs or upper respiratory passages is a very real source of danger to other cattle housed in the same building. The cattle are commonly tied together, two in the stall. If a cow is suffering from tuberculosis of the throat she may affect her neighbour, and I think the Government should enact such legislation as will stamp this disease out.

8895. The present law will not accomplish that object?—No. From what I have seen, the cow with the tuberculous udder is a very great source of danger. A cow suffering from tuberculosis of the udder must be regarded as a living manufactory of tubercle bacilli.

8896. How many cases have you discovered of tuberculous udders?—This Order is of comparatively recent date, and we have not got detailed statistics. Since then we have had four animals destroyed under the Tuberculosis Prevention (Ireland) Order.

8897. Was the full compensation paid?—In one case £9 was paid, and in another case £10. That cow had cost £25 10s. the night before I seized her.

8898. Would you be in favour of withdrawing that limit of £10 and giving discretion to the officer dealing with this branch of the inspection, to give such compensation as he thinks is reasonable and just?—That is a question that could not be answered directly, for this reason—the Tuberculosis Act has only been applied to certain areas at the discretion of the Local Authority. It is not universal. If, say, the Belfast and Castle-rough Rural District Councils decided to increase the amount of compensation, and the adjoining districts did not, I am afraid that we would have more tuberculous cows in our district.

8899. The suspicious cases would cross the borders?—Yes.

8900. Supposing the limitation was withdrawn all round, and uniform administration enforced by a Central Authority, the difficulty would be removed?—Yes, and give the Central Authority entire control.

8901. You would be in favour of that?—Yes.

8902. Would you be in favour of the withdrawal of the limitation of £10 and allow the person assessing the value to give reasonable compensation?—No, I would not. I would have it done under limit, but that limit to be determined after a year's working. This is a very wide question, and the more one attempts to think out the difficulty the more careful one would be about handing an opinion.

8903. Do you not think it was rather a hardship that this man bought a cow for £22 10s., in good faith, believing her to be a sound animal, and you seize the following day and order her destruction, and only pay £10?—Yes. Why I gave you the answer I did was for this reason—I cannot see any difference between a cow being seized in a dairy, and a carcase being seized in the slaughter-house. If the health of the people is the supreme law, let the State compensate to the full and seize everything that is wrong, and do not let us begin in Belfast, but make it uniform all over Ireland.

8904. I do not suggest that it should be applied to any single district, but what I would submit is that for those engaged in carrying out this Order, like yourself, if they knew that they would inflict no financial loss on the owner of the animal it would give them courage to carry out rigorously every provision of the Order?—It would.

8905. If the owner of the cow happened to be a poor man you would have some hesitation in ordering the slaughter of his beast?—That is so.

8906. Do you not think that it is an unreasonable condition to impose on an officer discharging a duty in the interest of the community at large?—It is, but there is another point that comes into this. In this particular case that I have in my mind's eye the man did not buy her without a warranty.

8907. Is a warranty given in every case?—Around here the cattle are sold generally on warranty with regard to their udders. This cow in question had been so sold. This man got £10 from the District Council, and as far as I recollect either legal proceedings were threatened or instituted against the person from whom he bought the cow, and I know he received a portion, if not all of the purchase money, but whether he had actually to take legal proceedings or not I cannot say.

8908. Dr. MOONSHAN.—Was the udder diseased?—Yes.

8909. The CHAIRMAN.—No such custom of giving a warranty prevails in Dublin so far as I know, and I have never heard of an animal being returned and the seller sued for the loss. So you see, the application of a certain condition or custom prevailing in certain districts would vary and vitiate the administration in other districts where the same custom did not prevail?—Yes.

8910. So that it would be better to make it universal?—Yes, I am in favour of giving the farmer the last penny of compensation provided it is so arranged that we may not be flooded with tuberculous cattle.

8911. Do you not think it would be more desirable that in the first instance the Public Health Authority, ordering the slaughter of the beast, ought to be the authority responsible for the payment of the compensation?—Certainly not.

8912. On whom would you impose that responsibility?—May I illustrate my meaning. From Belfast and Castleknock a large portion of the city milk supply is derived. If this Act was worked as you suggested and cows seized in Belfast Rural and Castleknock Rural Districts, the people of those districts would have to pay, whereas the animals were slaughtered to protect the health of the people of Belfast.

8913. I agree, but at the same time I think that if the inhabitants of the city provided a market for the sale of a certain article of food they have a right to expect that the food supplied would be sent in in a healthy condition?—I agree, but that is not my point. If the health of the people and the safeguarding of their health—

8914. You would make it a State charge?—Yes.

8915. You are not objecting on the question of compensation?—No.

8916. Only as to who should pay?—Yes. I think the health of the labourer in the North and in the South should be of equal consideration to the State. The plan you have outlined would be a distinct grievance on a poor district, whereas if the compensation was spread uniformly over the country we would all hear our share.

8917. I am not advocating any plan as to the source from which the money would come, but I am distinctly of opinion that it is unfair to the members of the trade that when their property is sacrificed for the public good, they alone should be the victims?—It is a most abhorrent thing that they should be asked to do so. I see cattle going every day to our abattoirs that any intelligent lay man would say were not healthy animals.

8918. Can you suggest any reason why there is such a tremendous demand for cow beef in the City of Belfast, because we have had the figures here from the Veterinary Inspector of the city, and they disclose the fact that 15,000 cows are slaughtered in the abattoir for the food of Belfast in the last year?—I have been looking into that matter for some little time.

8919. It seems remarkable on the face of it?—As a matter of fact you may take it this way, that the amount of meat consumed in the city depends practically on the amount of animal work done in the city, and that the increased consumption of meat goes up proportionately with the increasing prosperity of the workers of Belfast.

8920. Are the cows that are kept in your district milked for one period only and then slaughtered, or are they bred from and kept from year to year?—The practice prevails amongst those engaged in the city milk trade that when a cow passes her period of milking she is sold.

8921. They don't keep them for a second or third calf?—The men who produce butter does.

8922. Do any of the people in your district keep milk records?—Some very few do.

8923. Is it becoming more general?—I think it is even less done than it was.

8924. Why—is the trouble regarded as too great?—Partly that, and I honestly believe also because the intelligent farmer was disgusted with his records, as he found what he regarded as the worst cow in his byre giving him most milk.

8925. Don't you think after all it would be well if he knew where he stood?—Yes.

8926. I quite understand that the idea prevails that the cow that gives a heavy yield for two or three months is a good milker, whereas the cow that gives a steady flow for eight or nine months is better?—I believe the view is as I have stated—that they are disgusted.

8927. Mr. O'Brian.—The same thing has happened in Limerick—that the farmers were so disgusted at their own judgment being shown up?—I am giving you the results of my own observation.

8928. The CHAIRMAN.—Are the calves reared where they are bred?—They are never reared in a sweet milk farm; they don't keep them there. They may buy a cow in calf, if they cannot get one recently calved or

just about to calf; but calves are not reared in our dairies.

8929. We had evidence as to the large number slaughtered in the abattoir from three to ten days old. That must be a tremendous wastage of the stock of the country?—Yes. Mr. Jordan (Veterinary Inspector, Belfast Corporation) can give you full particulars about that.

8930. Yes, he gave us the particulars. With regard to the milking stock generally, do you think the yield of milk has increased or diminished—what is the opinion amongst the cowkeepers?—They told that the dairy cattle have deteriorated in the milk yield, and you hear many theories put forward to account for that.

8931. Mr. O'Brian.—Are they based on any really tangible reason or is it simply an expression of opinion that one hears that the old people are the best?—No; I think it is true.

8932. MISS McNEILL.—You don't feel that it is influenced by the opinion you have expressed—that of a cow giving a heavy flow for a period?—No. I think that the most probable cause of this view with regard to our dairy herds is that the farmer of late years has become more methodical. He has got to keep a set of books, and he finds he can contrast the yield one year with another, and since competition has made the agricultural look more keenly on these things he is more observant.

8933. The CHAIRMAN.—Have you much difficulty in enforcing the provisions of the Order with regard to cleanliness?—It requires constant supervision.

8934. And no amount of legislation without inspection will ensure the strict observance of the rules?—No.

8935. Your assistant, I take it, is an unqualified man?—Unfortunately he is dead.

8936. No one has been appointed since?—No.

8937. It is not contemplated that the appointment should lapse?—The idea of the Council was that they should retain me as a full time officer to do the whole of the work, as they were of opinion that they would be better served by so doing than having a man on the same lines as the last inspector.

8938. Is it by the payment of a dual salary by the two District Councils?—Yes.

8939. Are they likely to agree as to the proportions to be paid by each?—I don't know.

8940. Are their districts uniform in size?—The Belfast Rural District is as three to two compared with the Castleknock district.

8941. And the number of cows would be even larger still?—Yes.

8942. Are you in any way restricted in the administration of the Order by the feeling manifested by members of the Council towards dairymen?—That is unavoidable to a certain extent in any local board governing local things, but I don't think it prevails in any of the two Boards more than elsewhere, say, in the City of Belfast.

8943. I don't suppose that you have got a double dose of original sin in your Councils?—I am quite willing to admit that legislation for dairymen by dairymen can never be a success.

8944. Do you think that the administration would be more efficient under a central than under a local authority?—Yes.

8945. You would be in favour of having the Order administered uniformly over the entire country?—Yes. My scheme of the carrying out of the Order would be a central board, such as the Department of Agriculture, to enforce the provisions of the Order from Fair Head to Cape Clear without fear or favour; compensation for tuberculous; strict inspection; compulsory slaughter; notification of disease; the payment of a notification fee to any person who would report disease.

8946. That is rather a new idea—is that in existence?—No.

8947. You would make that a petition to ensure that the owner of the animal would advise the Public Health Authority on the first available opportunity of the presence of disease in his herd?—What I would wish to get at is this—the prompt notification of disease existing amongst the dairymen, their families, their employees or their families, or amongst the dairy cattle, notification to be made direct to the Executive Sanitary Officer, who could advise the responsible Officer on the case right by. Notification to be compulsory to—the registered dairymen; the doctor who might be in attendance; the veterinary surgeon who might be in attendance, and in the case where a dairymen or his servant would attend and notify the existence of disease, I would suggest that that person should be paid

a fee afterwards in the same way as, in some instances, medical practitioners are paid a fee. If that system of notification were enforced, it would enable the inspecting officer who went into the dairy and found a cow with udder trouble to institute proceedings against the owner for not having reported it. We are only beginning to realise the danger that may arise from the various forms of udder trouble.

8948. And these are the conditions you would impose?—Yes, with a heavy fine on the Doctor or Veterinary Inspector who would not notify. It is such a serious thing that unless it is done conscientiously it is best left alone.

8949. No good results will follow from playing with it?—I think you would do harm, because you would teach the people to hide it.

8950. In those cases in which you discovered the animals, did the owner indicate that anything was wrong before you discovered them yourself?—I have had two cows seized in the last two months, and one of them had been notified.

8951. And in the other case do you think the owner realised that there was disease in his herd?—As far as I could determine he seemed to be of opinion that it was simple udder trouble.

8952. There are other udder troubles than tuberculosis?—Yes: they are very numerous.

8953. Do you consider some of these a source of public danger, too?—Yes. I am speaking now to a certain extent in the dark, but we shall take the common disease affecting udders, popularly called cow-pox. This disease is characterised by little blotches on the teat. A scab forms, it is rubbed off by the milker: supuration follows, and it is most probable it finds its way into the milk, which becomes affected. The disease peculiar to the disease almost invariably contains many micro-organisms; for example, the various staphylococci and streptococci, whose pathogenic power is well known.

8954. Are you in favour of concrete floors?—Certainly.

8955. Do you think that injury sometimes arises to the animals from these floors?—Not if properly laid.

8956. We had evidence before us this morning from a gentleman who stated that as a result of the concrete floors some of his cows suffered from housemaid's knee?—You frequently see cattle with a thickening of the skin at the knee—just a hump, I have kept a careful watch during the past few years on that question, and I have no hesitation in saying that 75 per cent. of the cases of thickened knees have been due not to concrete floors, but to badly laid brick and cement floors.

8957. You do think that an impervious floor is absolutely necessary?—Yes, but not necessarily concrete. I have seen cobble stones set in cement, and they made a splendid floor.

8958. Dr. McNEIL—You laid down certain conditions with regard to applying the tuberculin test?—Yes.

8959. And the first condition was the condition of the animal at the time?—Yes.

8960. I presume that when you meet an animal for the first time it would be useless to apply the test?—No. What I meant was this—you decide to apply the test to a healthy-looking animal. Before you proceed to apply the test, you take that animal's temperature, and I have frequently found that an animal had an abnormal temperature—for example, at the beginning of a chill—and if you had inoculated her without taking the temperature and taken care that she was in a normal state you might get a false reaction.

8961. It is your opinion that you must get the animal with a normal temperature before you apply the tuberculin?—I don't go as far as that, but for the satisfactory application of the test it is essential that the temperature should be taken the day before the test and the day of the test and that these temperatures should be the same, beyond, of course, the normal variations of health.

8962. It is a temperature test then that you apply to the animal?—Yes. If the disease is advanced to the point that it could be determined by a trained observer I don't think that in ninety-nine cases out of a hundred you would get any reaction from the tuberculin.

8963. In the case of a healthy-looking animal that does react, you infer from that that the tubercle infection is very small—do you measure by the measure of

the reaction?—I prefer to judge by the post-mortem examination. That is the only thing you can speak definitely of.

8964. Have you ever tried any curative treatment in the case of tuberculous cows?—No.

8965. Have you heard of it being tried?—Yes.

8966. But you have never tried it yourself?—No.

8967. We have had it in evidence that repeated injections of tuberculin have been tried with good results?—I must confess that the more I see of tuberculous and the more I study its conditions the less I appear to know about it. During the past three years I have closely studied tuberculous in cattle, and I appear to know less about it now comparatively than I did then.

8968. Would you condemn a carcass for "grapes"?—Yes, and I may say I am in entire agreement with the findings of the Royal Commission on the question of meat inspection.

8969. I notice that you give us one of the reasons in connection with the application of the tuberculin test, the distance from the house?—Yes.

8970. And that the animal would want to be super-saturated every eight hours or so?—Yes.

8971. Would that convey to your mind anything like creating a sanatorium for these animals?—Yes; but would it not be far better to slaughter all these cattle—to get tuberculosis eradicated and slaughter all infected cattle.

8972. You say that you may have an animal that reacts and not be able to ascertain that?—I did not mean to give you an impression of that kind. The impression I wanted to convey was that in a sanatorium an artificial diet is difficult to give this subject the attention it deserves, and that you should not apply the test unless you can do it properly, or you may form a false opinion.

8973. Do you know anything about the latest?—No much.

8974. You don't know the conditions in which the animals are milked at these farms?—I cannot give you any information on that point.

8975. Mr. WILSON.—It would seem from the figures you quoted that the staff for inspecting some 3,500 cows is a small one?—It is, sir.

8976. You are the only professional man?—Since I have gone to the Belfast and Castlereagh districts I have received great assistance from Dr. O'Neill and Dr. Coles, who are the Medical Officers of Health. The Act of Parliament has not placed the Medical Officers in reference to this Order in the position which I would like to see them occupy.

8977. What would be your views as to the relation of the Medical Officer and the Veterinary Inspector?—I find that if I could confine myself wholly to the examination of the dairy cattle and did nothing else it would take up all my time.

8978. There are over 3,000 cattle under your charge?—Yes.

8979. Your evidence rather bears out what Dr. Agnew has said?—Not altogether. I would like to make it perfectly clear, although I have made this statement, that the best of relations have always existed between the Medical Officers and myself, and I have always derived the greatest assistance from them. What I mean to convey is this, that I am of opinion that there are many provisions in that Order that would be better carried out if you had the Medical Officer of Health in charge of that portion of it which affected man, and the Veterinary Officer that part which affected cattle only.

8980. Where do you draw the line?—It would be difficult.

8981. What number of registered dairies are there in the district?—In the Castlereagh district there are one hundred and forty-six, that is inclusive of those engaged in butter-making that we have succeeded in getting registered, and in the Belfast Rural district there are one hundred and forty-eight registered dairies.

8982. We have had considerable evidence both in Belfast and before us, regarding the question of granting power to the city, or what has been called the consumers' area, to inspect the conditions under which milk is produced in the area in charge of the producers. What would be your opinion on that subject?—I think if a change is desirable in the present system that change should take the form of a Central Board of Control.

8983. Supposing that were not possible for any reason?—Transfer the whole thing to the Department of Agriculture; it is really within their province. Then you would have it administered as portion of the public health service of the country free from local influence.

8984. At the same time it is quite possible that there might have to be some method devised which would be better than the present one, and just not come up to the ideal. A large supply of milk is sent into Belfast from Antrim; and we had evidence that the Antrim Council does not enforce the veterinary examination of cattle in their district. From the public health point of view don't you think that the Belfast Public Health Committee should have a right to inspect the conditions under which the milk is produced in Antrim?—Yes, by professional men.

8985. You would object to a non-professional man going out?—I would object to my work being criticised by a person who knew nothing whatever about it.

8986. Take this Antrim case—would you not there give the Belfast Authority the power to go outside their own area and interfere?—I cannot see any reason why the County Borough of Belfast should not go out to see how the milk is produced. On the other hand an Act of Parliament is an Act of Parliament and it should be enforced uniformly.

8987. The CHAIRMAN.—You have no objection to a qualified man inspecting outside his own area in the circumstances Mr. Wilson has described?—No.

8988. You recognise that there is a wide difference in the way in which the Order is enforced?—Yes. There is just one thing I would like to draw your attention to in connection with this matter. You have heard a considerable amount of evidence in and without Belfast. It is well to remember that the dairies in the County Borough of Belfast should be twenty years ahead of the dairies in the rural districts. For this reason—during the past twenty years they have had the advantage of being subject to the building laws and the visits of the sanitary staff. In the rural district adjoining there has been no sanitary staff until recently; and until the Order of 1908 there was no supervision, with the result that the dairies in the vicinity of the city are precisely three years old. The dairies in my district are far from perfect, but in time they will be better.

8989. Mr. WILSON.—With regard to tuberculosis in cattle, in your opinion would this be true, that it is a small herd with a small number of cattle on it that would be the most likely field in which to discover the tuberculous animal?—Yes; that has always been my experience.

8990. Would you agree with the opinion that without the existence of milk records, it is impossible to hope for any improvement in the milk yield of the stock of the country?—It is a fundamental principle of any science whatever.

8991. You will also agree with the idea that one of the main reasons which is preventing the Belfast dairymen from keeping records is because he does not breed from his cows?—That is one reason; and I have often wondered if it would be possible that, as a result of the continued forced feeding which cattle undergo in order that they may yield a good quantity and quality of milk, this system of forced feeding from one generation to another has ruined the stamina of our cattle.

8992. You have lay assistance in your district?—Yes.

8993. And you have been trying to improve the dairies in your district?—Yes.

8994. Which of the two of you has the more effect in inducing the farmer to carry out improvements, the professional man or the layman; possibly you would have both of equal influence?—Without going into personalities, I would make the statement that the professional man is the better man for two reasons—the training he has received, and second, he is generally the type of man who is more proof against one of the worst curses of administration in this or any other country. I need not go further.

8995. The last point I want to raise is a more technical one. We had evidence that a certain farmer had four cows, two of which seemed to be perfectly healthy, and two of which appeared to be sick. The tuberculin test was applied, and the two that appeared to be ill did not react, while the two that seemed healthy gave reactions. They were all killed, and of the four animals the ones which did not react were

found to be full of disease, whereas the animals that did react were free from disease. From the purely professional point of view there is nothing impossible about that?—In the evidence I have offered today, I have pointed out that where the animal is clinically affected you will not get a reaction; but on the other hand, where the animal appears to be well, the test will reveal if tuberculous is present. As a result of my experience, I believe if one would miss it, it is there.

8996. So that that evidence from the professional point of view was not impossible?—It was perfectly sound.

8997. Mr. O'BRIEN.—You have now got pretty good byes in your district?—Yes.

8998. How are they lit in the morning for the people who are in milking?—All through the two districts, with these exceptions, the pen-film of lamp is the light.

8999. And in a byre with twenty cows would that be the case?—Yes.

9000. How many lamps would they have?—They work with one lamp to two milkers. That is hung from a beam or a wire.

9001. Does not that throw the odder of an animal into a strong shadow—the part that you want to see clean is in the darkest shade?—I cannot say that that is so. It is really most ingenious the way they get over that difficulty. You see a lamp hung on a wire, and it seems to serve its purpose excellently. Others have acetylene gas.

9002. You think on the whole that there is some slight possibility of getting the odder clean before milking on a winter morning?—I do, certainly. If the cattle are housed in properly constructed stalls it is nine-tenths of the battle of keeping them clean. If you put two cows into a stall in which they will fit, they will be both clean in the morning, but if you give them too much room they will be dirty.

9003. I have never seen any method, except, perhaps, bells, which would prevent a cow from being dirty in the stalls?—Your stalls are too wide or that could not occur.

9004. I have some sixty to eighty cows. I have been up at four or five o'clock in the morning, and I found it impossible to keep them clean?—In our dairies the cattle are generally bedded at night in hay or straw, and I find they generally rise clean. If the stalls were properly constructed and the cattle have not excessive room they will be clean.

9005. We have had some evidence before as which shows that, especially in the case of tuberculous animals, the danger of infection from small particles of dung getting into the milk is very serious, perhaps more serious than any other?—I don't agree with that. Tuberculosis in that part of the cattle compared with other parts of their anatomy would not be one case in a thousand. Nine hundred and ninety-nine cases out of a thousand would effect the throat.

9006. What I rather gathered was that if an animal is tuberculous at all, and passing the tubercle bacilli in the faeces, it is much more concentrated in that form?—That is quite possible.

9007. You make some reference in your summary of evidence to the grooming of cattle. Do you recommend brushing the udders?—No; brushing always makes dirt.

9008. You think at all events that there is a fair chance of getting clean milk?—Certainly.

9009. Do you find that any of the people insure their dairy cattle?—Yes; I have known cattle to be insured, and some of the insurance companies will accept cattle.

9010. Dairy cattle?—Yes; but as far as I know the premium is prohibitive.

9011. These cattle that are insured are thorough-breds and very valuable beasts?—I am speaking of a dairy in the Castlereagh district with which I am acquainted.

9012. At a high premium?—Yes.

9013. You don't yourself know anything about the scheme of cattle insurance that prevails in France?—No.

9014. Because it occurred to a good many people interested in these matters that it might be a way of getting clear of the most obviously tuberculous cattle to refuse to insure them?—I often thought that if some organisation was got together, to put the case for tuberculosis against it before the dairymen in this country, in the same way as the Women's National

Health Association is putting it before the women, that we had seen some real progress, because I know it has been astonishing the interest evinced in tuberculosis by the women folk. I would strongly suggest, if it were possible, to get the Women's National Health Association to extend their field of labour to educate the farmers and dairymen's wives to understand that this disease is preventable and contagious. So soon as you awaken that interest I think you will have done more to get rid of tuberculosis even than by the slaughtering of these cattle.

9015. Miss McNeill.—Mr. Wilson asked you about the lay inspectors?—Yes.

9016. Do you think that the appointment is occasionally desirable?—It may be occasionally desirable.

9017. Supplementary to the veterinary inspection?—Yes.

9018. Can you suggest anything that would assist one to realize what should be the proper qualification for these inspectors?—In the first instance, I think every lay inspector should have a certificate of the Royal Sanitary Institute in one of its branches suitable for his work, and I should make most searching inquiries into his moral character, and unless he was a man of undoubted honesty and respectability I would not employ him at any price. I think that the veterinary officer or the medical officer, as the case may be, should be required to report to his Board

concerning the manner in which this inspector carried out his duties. Officers of that type should be appointed subject to the approval of the Executive Sanitary Officer, because he is the man who is on common ground and can instruct whatever officer is necessary.

9019. How does milk come into your district?—In carts, and in some cases in cans by rail.

9020. Are you satisfied with the railway facilities for the carriage of milk?—It seems to be fairly good. If there is anything amiss it is the fault of the people who send the milk. I think the railway companies have treated them very well, so far as I know. I should like to draw attention to the manner in which I see milk delivered at the houses by the retailers. It is quite a common thing, if one is out in the morning, to see the milk at the door-steps in a can without a lid. That is not so true of recent years as it was, because I know the City Authorities have been very keen on that particular question, but it is as such a contrast to see the milk sent out in sealed bottles.

9021. It makes it more expensive?—In a case of this kind expense should not be counted. You can lift the bottle and see if it is clean. It is very much more to be preferred than milk supplied in any other way.

The CHAIRMAN.—We are very much obliged, Mr. Barry, for the very interesting views you have placed before us.

MR. JAMES HOLMES CONTINUED.

9022. The CHAIRMAN.—You are Clerk of the Rural District Council of Newmarket?—Yes.

9023. We have had the advantage of having witnesses from your district this morning. We have learned from them the provisions that have been adopted for the carrying out of the Domes and Cowsheds Order in the Newmarket district. I notice in your price of evidence you state that the population of your rural district is 41,920?—Yes.

9024. And that there are one hundred and seventy-six registered dairies, and about fifteen hundred cows, in your district?—Yes.

9025. I also notice that you supply milk to Belfast, Bangor, Derry, and Newmarket urban districts?—Yes.

9026. Do you supply a considerable quantity of milk to Belfast?—Yes.

9027. Has any request been made by the Belfast Authorities for permission to go into your district?—They made application under section 19 of the Tuberculosis Act. The Local Government Board sent the application to my Authority. The Belfast Authority, in their application, referred to three dairies as being in my district. Two of these dairies were not in my district at all. Regarding the other dairy, the man had only purchased the farm, and had only started milking milk two days. Bangor also made application, on the ground of preventing the spread of infectious disease, for power to inspect dairies in my rural district.

9028. Was the power given or withheld?—It was withheld.

9029. What was the view entertained by your Council?—My Council opposed the Belfast application, on the ground that the statements made in the application were erroneous and unfounded. In the case of the Bangor application, there was only one case of scabiosis reported to us from the Bangor Rural Sanitary Division prior to this outbreak of disease in Bangor, and there was no milk sold from said house. The Medical Officer of Health for my rural district was also the Medical Officer of Health for Bangor town, and reported that the infection came from dairies from Belfast.

9030. So your authority were satisfied that there was no reasonable ground for suspecting the milk from your district as being the cause of infection?—Yes.

9031. It was not because you had any general dislike to the invasion of other officers coming into your district?—We have.

9032. If a demand was made by the Belfast Authorities to go into your district, in order to inspect the condition under which milk is produced, what would be the view of your Council on that question?—They would refuse the application on this ground, that we do our best to administer the Order as well as possible.

9033. Supposing the Belfast Authorities came to the conclusion that you were not doing your best, what would you do under these circumstances?—We would refuse, because we believe that their coming into our district would be a source of continued annoyance.

9034. You think there would be a conflict between your officers and their officers?—Yes, and a conflict between the Veterinary Inspector and a layman coming to supervise his work.

9035. I can understand that a professional man would resent having his work supervised by a layman, but supposing the Belfast Authorities sent out their Veterinary Inspector, would there be the same objection in that case?—We would still object, because we believe that they have sufficient safeguards, and they have also the Local Government Inspector. We, as a Rural Council, actually invited the Local Government Board Inspector to go round our dairies and see them.

9036. And you think your house is properly in order at the present time, and that you do not need assistance from Belfast, superior as it is?—We don't acknowledge their superiority.

9037. With regard to the scarcity of milk, we have evidence that in two or three localities in your rural district there was such a scarcity. Have you formed any opinion as to that subject?—I have inquired through the Medical Officers of Health and others, and I find there is a scarcity of milk in some districts.

9038. Where people who have money to buy cannot get it?—That is so.

9039. What are these districts?—Round Carrickmore and Ardrian, in which there are only two registered dairies, and there are also other places.

9040. Do you state that there are persons in your district who are unable to obtain milk for money without going an unreasonable distance?—I have heard of several cases from the medical officers, and I mentioned them to my Public Health Committee, and two of the members of that Committee told me that one of the persons could get milk, but he would not go for it at the stipulated hour.

9041. The vendor refuses to have his domestic arrangements upset by having people coming for small quantities of milk at all hours?—Yes. The greatest difficulty is in the Tuillynagh division. There are no dairy carts sent into the district, and condensed milk is used in that district.

9042. Is there a large trade in condensed milk in that district?—Yes.

9043. And you also say that "I spoke to the Medical Officer of Health and he told me that he had a large number of people who were ill, and he recommended milk, and the farmers very generously gave them the milk and charged nothing for it"?—Yes.

9044. So that in the case of illness there is enough of good nature left to supply the milk?—Yes.

9045. Do you think the children of the district got enough of milk?—I don't think so.

9046. To what reason do you attribute that—is it to want of ability to buy it, or is it because the parents do not appreciate the value of milk as a food?—They don't appreciate the value of milk.

9047. Do you know of any means whereby the value of milk as a food could be more widely disseminated?—There was a similar state of affairs in the town of Newlands, and the Medical Officer of Health has for some time issued a little pamphlet, an annual report, and distributed it in every house, and the people read it very much, and they have now a better appreciation of the value of milk as a food.

9048. So that the distribution of this pamphlet has been educational in its effects?—Yes.

9049. And led to an increased supply?—I don't know that. The doctor also advocated the making of home-made bread.

9050. Has the number of cows in your district decreased or increased?—I cannot say.

9051. Since you commenced registration has there been an increase or decrease?—I don't think there is. It has been practically the same.

9052. Is there any district in your division where the absence of milk is the cause of a real grievance to the poorer inhabitants?—The only place I know of is Tullycraff, that I have mentioned.

9053. Is it possible that in that district people may be selling small quantities of milk to labourers and others without being registered?—I don't believe so.

9054. Has the application of the Order been responsible for the restriction of the sale?—I should say it has.

9055. People will not sell because they do not wish to be subjected to the inspection which registration under the Order imposes?—Yes.

9056. Mr. WILSON.—Do you know many who have gone out of business on that account?—I know seven or eight.

9057. Is that in the district in which the scarcity exists?—No.

9058. Has any person been driven out of the trade or abandoned the trade in that district where scarcity exists in consequence of the enforcement of the Order?—No. In one place that I know of there was one man, and he was giving a little milk to two persons, and he was reported, and the inspector told him that he would have to cease selling or get registered, and the man stopped selling.

9059. That was the only case in that particular district in which, so far as your information goes, the sale of the milk was abandoned in consequence of the Order being in force?—Yes.

9060. Dr. MOOREHEAD.—Is tuberculosis a notifiable disease in your district?—Yes.

9061. Has there been any increase or decrease in it?—If you look at the statistics at page 2 of my evidence you will see there was a decrease. The figures show a decrease from 8.5 to 1.79 per thousand. In the three latter quarters of 1905, when the deaths from tuberculosis were shown separately in the Registrar-General's return, the number of deaths from tuberculosis was:—

1905—96,	equal to a death-rate of 8.05 per 1,000 per an.
1906—131	" " " 2.88 " "
1907—119	" " " 2.85 " "
1908—132	" " " 2.95 " "
1909—106	" " " 2.94 " "
1910—85	" " " 2.02 " "
9111,	and three quarters of the
present year,	96 deaths = 1.79 " "

9062. The CHAIRMAN.—That is a very gratifying result?—I have taken those figures from the Registrar-General's returns.

9063. There is plenty of milk to be had in your district?—Yes, but not in Tullycraff.

9064. Mr. WILSON.—Do the labourers use goats?—Some labourers do; we have recommended them all to use goats.

9065. Supposing you put yourself in the position of the medical officer in charge of Belfast, and you discovered that the Antrim District Council did not enforce the veterinary inspection of the cattle, would you not in that case, for the health of the city, be very anxious to obtain power to go out and inspect the dairies?—No. I would appeal to the Local Government Board to see that the Order was enforced. I don't see how a layman can enforce the Order.

9066. I will put it to you in another way—would you prevent the milk of that district coming into the city?—Yes, until the Order was in force.

9067. Dr. MOOREHEAD.—Do the people object to the notification of tuberculosis?—No. We send the patients a little book containing instructions. I should also add that where there was a case of tuberculosis, long before the Tuberculosis Prevention Act became law, our Council had the houses, clothes, &c., disinfected. As Executive Sanitary Officer, when I got a report from one of the Medical Officers of Health that there is a case of infectious disease, or when a case is removed to hospital before I get the report, I send the man to disinfect the house with formalin, and to bring all the clothes worn by the patient, and all the bed-clothes, &c., to the steam disinfectator to be disinfected. At the same time I send a notice, marked "A," to the Sanitary Sub-Officer, as the responsible person who has to see that the orders are obeyed; one marked "B" to the person disinfecting, and one marked "C" to the head of the house where the person suffering has been removed. You will notice that any person who is suffering from, or who has been in contact with the person suffering from infectious disease, is forbidden to milk or to handle milk vessels, and the Sanitary Sub-Officer visits to see that these orders are complied with. Not only that, but in the case of a person who did not attend to these matters, we have taken legal proceedings against him. For instance, a man near Duncannon did not attend fully to the directions of the Council, and we issued a summons against him, and he attended the Council meeting, and assured the Council that he was not aware of the provisions of the notice. When a person is isolated at home a letter is sent to the head of the house in the following terms:—

"It has been reported to me that..... an inmate of your house, is suffering from..... and that you have decided to isolate and have the patient nursed at home. I am to enclose you a statement showing what precautions you are to take in this matter to prevent the spread of the disease. I would particularly draw your attention to Article 7, and warn you not to allow any person suffering, or who has been in contact with the person suffering, or with the attendant, to milk or handle milk vessels, or any food for human consumption. Of course, there is a severe penalty for any person who offends against any of these points."

9068. The CHAIRMAN.—I do not think it necessary to take you through your entire evidence, as we have already had the advantage of hearing other witnesses from your district, and, of course, we got a good deal of information from them. We do not think it necessary, therefore, to go over the same ground again with you?—I am anxious to point out, with regard to the cases of scurvy in Bangor, that it was not from any dairy in our district. We take every possible precaution to prevent the spread of infectious disease.

9069. Mr. H. L. BERNHOLME, Food and Drugs Inspector under the Belfast Corporation, addressing the Commission, said.—Mr. Chairman, I understood an impression has been conveyed to the Commission with regard to sweet milk, that in case of a sample containing only 2.6 per cent. of fat, we do not take any action in that case. What I want to say was that if the milkman's previous character was good, and if we found the percentage slightly below the standard, we cautioned him and took other samples of his milk, and if we found it wrong again we brought him before the court. In this way we don't allow them to continue to sell below the legal standard.

The Commission adjourned at 6.15 p.m. till the following morning.

TWENTY-FIRST DAY.—SATURDAY, 17TH FEBRUARY, 1912.

The Commissioners resumed their sittings in the City Hall, Belfast, at 10.30 a.m.

Present:—P. J. O'NEILL, Esq. (Chairman); Miss MARGARET McNEILL; Sir STEWART WOODHOUSE, M.D.; GEORGE A. MOOREHEAD, Esq., F.R.C.S.I.; and ALSC. G. WILSON, Esq.

S. W. STRANGE, Esq., Secretary

Dr. CHARLES O'NEILL, examined.

9070. The CHAIRMAN.—You are Superintendent Medical Officer of Health in Cardiforth?—Yes.

9071. Is there a scarcity of milk amongst the poorer class in that district?—I do not think so, sir.

9072. So far as your experience goes you have not seen any case in which those who were able to buy were unable to procure milk?—No.

9073. Are there a great many labourers' cottages in your district?—No.

9074. Is there an industrial population of any size in the district?—Chiefly dairying and villa residences.

9075. So that the dairy employee has always sufficient milk?—Yes.

9076. Have you ever been requested to make any report on the dairies in that district?—I had charge of the dairies before the veterinary inspector was appointed three years ago.

9077. Comparing their condition to-day with three years ago, have they improved?—Yes, very much.

9078. And I suppose there is still need for further improvement?—Yes. Especially in the poorer class of dairy.

9079. The small and poorer class of farmer has, of course, less efficient equipment?—Yes; the better class dairies are very good.

9080. Are there many of these small dairy producers?—There are a good many.

9081. Do they send their milk to Belfast?—Yes; in fact it practically all goes in, except what is used in Holywood.

9082. With regard to cleanliness, do you find that the habits of the people are careful with regard to their clothes and hands?—The poorer people are careless.

9083. Have you traced an outbreak of fever to milk in your district?—Yes, we had typhoid.

9084. Did the Public Health Authority seek power to inspect the place?—No, they just came out.

9085. And no objection was made?—No.

9086. The Council, so far as you know, do not entertain any feeling adverse to the right of the Belfast Authority to go out and see in what condition the milk is produced?—I think they have a perfect right, and, personally, I would be glad to see them.

9087. I am not speaking of your own feeling, but the feeling of the District Council?—At first they were a bit irritable, but that passed away. They did not at first understand the object of the inspection, and when they did they had not the same objection.

9088. Are any milk records kept in your district?—No.

9089. Would it not be useful?—Yes. There is an enormous wastage of young cattle all over the district. They never breed from them at all, practically.

9090. They only milk them for one milking period, and then fatten them off?—Yes.

9091. In a district such as that the advantage is not quite so apparent, because it is only by keeping the record for a fixed period of twelve months that one can really realise what is the most profitable dairy cow to keep?—It is a pity to kill a good cow. If you had a good class of cow people would keep her.

9092. Your view is this, that if an animal had established a good record as a milker, a market could be found for her, and she would pass into the hands of one who would be likely to keep her for a number of years?—Yes. The present system must be a tremendous wastage.

9093. Has your veterinary inspector ever consulted you about milk from tuberculous udders?—He does, but I attend chiefly to the water supply. He looks after the cattle absolutely.

9094. Is there an efficient water supply in the district?—Yes.

9095. And are reasonable facilities made for the cleansing of the vessels?—Yes. Everyone of them has a milk-house to keep their vessels. The vessels are kept perfectly clean, and are always open to inspection in the milk-house.

9096. Have prosecutions ever been ordered owing to the condition of the vessels?—Not for the milk vessels at all, but in regard to the byres.

9097. No record of any kind is kept with regard to the product of the cow as a milk-producing machine, and the cow-keepers simply buy what they get in the market and sell whether good or bad?—Sell it to the butcher.

9098. Do they make high-class beef?—Some of them are pretty good.

9099. And you think a weeding out of the unprofitable animals would help to increase the milk supply?—Yes. If a man could get an 800 gallon strain, instead of a 600 gallon strain, he is bound to make profit.

9100. And carrying on a profitable trade there would be less tendency to adulterate the milk?—Yes.

9101. It is mostly the poor people who are subject to the temptation of adding to their income by illegitimate means?—They are the ones in our district who give all the trouble, because they have not the money to make the necessary alterations in their premises, and they have not a good class of cattle.

9102. Limited capital compels them to buy a bad class of cattle?—Yes, I think that is so.

9103. Have you ever discovered cows that presently yielded milk below the legal standard?—Yes. I know of a cow giving only 2½ per cent. of fat.

9104. And milk of that quality would leave the vendors liable to prosecution?—No doubt, but that is a rare case.

9105. But it is by no means an impossible case?—It happens over and over again.

9106. That danger is not so great if there is a number of cows in the herd and the milk is mixed?—Yes. One or two bad cows would never be noticed amongst thirty or forty cattle.

9107. You are strongly of opinion that the keeping of records would be of enormous advantage to the dairyman?—Yes. He has no idea of what quantity of milk his cows are yielding.

9108. Do you think the people would adopt the keeping of records?—They never would think of doing it except an inspector was sent round.

9109. If the advantages were brought home to them, do you think that they would be inclined to take it up?—You would have to send an inspector round.

9110. That would mean expense?—The Government send round inspectors to teach other things. He need not go to all the dairies.

9111. Is there any other question that you would like to direct the attention of the Commission to, Dr. O'Neill? Do you take any interest in the dairy business?—Yes. The bulls of today are not of a milking strain. Cattle are giving less milk than they did.

9112. So that the dairy cow of to-day is a less efficient servant than the cow that was kept twenty or thirty years ago?—The farmers try to buy a dairy cow that will give a pretty fair return after the milking period. It is a difficult thing to get an animal that will answer both for beef and milk.

9113. When a man is buying he has his eye on the side at the same time?—Yes.

9114. He would be inclined to buy an animal that would put on flesh rapidly?—Yes.

9115. You suggest, in your summary of evidence, that the milk should be tested by a competent person once a month for butter fat?—Yes, and for quantity.

9124. And who would you suggest that person should be?—Same person under the Board of Agriculture.

9125. This test would be only for persons supplying the milk?—Yes.

9126. What standard would you have?—The present standard is fair, but certainly I do not think it should be reduced.

9127. Is there much tuberculosis in cattle in your district?—No. There is a good class of cattle in the district, and the hyres are very good. Some hyres are better than what the Order requires.

9128. Is tuberculosis prevalent in your district amongst human beings?—No; it is an agricultural district.

9129. And a good milking strain in the cows is what you want?—Yes.

9130. Mr. Wilson.—Are you of opinion that the Dairies and Cowsheds Order has reduced the quantity of milk available in the district?—No.

9131. You are not acquainted with any large number of people who have given up the business in consequence of this Order?—No; I do not think any have done so.

9132. And I gather from what you said that there has been a marked improvement in the condition in which dairy cattle are kept in the district?—Yes.

9133. Within three or four years?—Yes. Every year they are building new hyres, and they are building very superior ones.

9134. The Chairman.—Are they building on loan?—No; the people are very well off.

9135. And you make this capital expenditure?—Yes. They can quite afford it. They keep twenty and thirty cows all the year round.

9136. Mr. Wilson.—Have you formed any opinion on the matter of housing?—I would be in favour of it.

9137. When you take a case before the Court, are you supported by the Bench?—The fines are very, very small; there is no doubt about that.

9138. You would like better support than you get sometimes?—The magistrates are in a very difficult position. A great many of them belong to the country. They do not seem to realize the gravity of the case at all. Where you have a resident magistrate you are fairly safe. The local men are not at in a great many cases.

9139. Mr. STEWART WOODHOUSE.—Are there many samples of milk taken for analysis in your place?—The milk from our district is all brought into Belfast, and is looked after by the city authorities then.

9140. Miss McNEILL.—We have had a great deal of evidence with regard to the practicability or otherwise of the Widal test as a protection against the typhoid carrier. Have you formed any opinion on the matter?—These carriers seem to be very serious. There was one in our district that we believe gave a great deal of trouble.

9141. Some witnesses suggest that all engaged in the actual handling of the milk should be subjected to the test?—I am afraid they would object to that—the workers.

9142. On what grounds?—I have great doubts if they would allow it to be done. They would have a sentimental feeling, but, of course, the test would not do them any harm.

9143. But that sentimental objection could be overcome?—It might be.

9144. We had the opinion of a certain witness here who said that it would cost about £1,500 to carry out the test, on the calculation that the number of dairy workers in the city was four hundred. He estimated the test at 5/- per head, and four tests of each person in the year. Was that estimate of £1,500 an error?—It is, no doubt, a serious thing if you have a carrier going about a district.

9145. The Chairman.—You would compensate by having a person under close inspection?—Yes, anyone who had been affected.

9146. Mr. BERRY, your Veterinary Inspector, suggested yesterday that there should be a notification of cases of infectious diseases?—Yes.

9147. Arising either in herds or workers?—Yes, because you cannot get at the disease soon enough.

9148. He also suggested a notification test?—Yes, that would be a small thing—batts crows.

9149. And that there should be a penalty for non-notification?—I think that is quite right. I think you cannot be careful enough about milk. The thing is to find out the disease as soon as possible, especially scarlet fever.

9150. There has been a great deal of trouble about notification throughout the country?—In my district there was none at all.

9151. Dr. ROBERT THOMSON, Chairman, Public Health Committee, Belfast, addressing the Commission, said:—Mr. Chairman, I crave your indulgence for a moment. I am sorry to have to take exception to a statement Dr. O'Neill has made; but if you will allow me, I will read the correspondence which has passed between the Clerk of the Castlereagh Rural District Council and the Town Clerk of Belfast:—

"Clerk's Office, Union Workhouse,

"Belfast, 16th January, 1902.

"DEAR SIR,—I am directed by the Rural District Council of Castlereagh to inform you that complaint has been made to them by their Veterinary Inspector that an official of the City Corporation is in the habit of inspecting dairies and cowsheds in the rural district; that action has created some irritation in the minds of the persons whose premises are so inspected, which has a tendency to interfere with the proper discharge of the veterinary inspector's duties. The Council respectfully suggest that these inspections should be made in future in accordance with the provisions of Section 4 of the Infectious Diseases Prevention Act, 1900.

"Yours faithfully,

"J. W. ROHN.

"Sir Samuel Black, Town Clerk, Belfast."

"City Hall, Belfast,

"21st January, 1902.

"DEAR SIR,—Your letter of the 16th inst. was before the Public Health Committee at their meeting to-day, when I was instructed to say in reply that the Committee were greatly surprised to learn that the Rural District Council of Castlereagh, their officers, or the proprietors of dairies in their district, should object to an officer of the Belfast Corporation inspecting dairies from which milk is supplied to the citizens of Belfast; that inspection should create irritation in the minds of the persons whose premises are so inspected convinces the Committee of the necessity for such inspection. The Committee, recognising the duty of protecting the health of the citizens, do not propose, as suggested by the Castlereagh Rural District Council, to limit these inspections to occasions coming within the provisions of Section 4 of the Infectious Diseases Act, 1900, but they intend to apply to the Local Government Board for an order under Section 19 of the Tuberculosis Prevention (Ireland) Act, 1904, authorising them to exercise in relation to any dairies outside the city from which milk is supplied within the city all the powers which they at present have in relation to dairies in the city.

"Yours faithfully,

"SAMUEL BLACK, Town Clerk,

"J. W. Rohn, Esq., Clerk to the Castlereagh Rural District Council, Union Workhouse, Belfast."

I would make a request—I see that the Belfast Rural District Council take exception to a statement I made in the course of my evidence before the Commission, that they did not facilitate the Public Health Committee. I said that they threw obstacles in our way at the time of the outbreak of diphtheria. They have appointed their Chairman to give evidence, and I would ask, if he gives evidence, that you would allow Mr. Harris, Assistant Town Clerk, to read the correspondence that took place between the Town Clerk and the Belfast Rural District Council.

9152. The Chairman.—What I understood Dr. O'Neill to convey was that, that up to a certain period he believed his Council was somewhat opposed to the inspection from outside authorities, but he thought the feeling was gradually dying out, and that just now, when they more clearly understood the purpose for which the inspection was carried out, they were more favourably disposed.

Dr. O'Neill.—That is so.

Dr. Thomson.—I am very glad of that explanation. I did not hear exactly what Dr. O'Neill said.

The CHAIRMAN.—That is what I understood Dr. O'Neill to convey. In the first instance he gave his own opinion; and I asked him if he thought his Council

entertained the same view, and he said that up to a certain period he thought they were hostile, but that recently they became more reasonable when they recognised more clearly the purpose for which the inspection was carried out.

Mr. ROBERT J. POSEY examined.

9145. The CHAIRMAN.—You are a solicitor practising in the city of Belfast?—Yes.

9150. And a land-owner as well?—Yes. I am a small freeholder of sixty-seven acres of land outside of Belfast, in addition to which I have my profession as a solicitor here for the past thirty-three years, and owning some cattle on my farm, which is situated at Chesholme. I am interested in the question of the milk supply of the city and its purity. I have been spoken to repeatedly by different farmers about the onerous conditions under which the milk supply is carried on, and have urged upon the farmers the necessity for their hygienic and dwelling-houses being more sanitary and up-to-date, but I have been repeatedly informed by them that they dread making alterations, either to their dwelling-houses or byres in the way of sanitary or other improvements, because immediately they do so the Poor Law valuation of their houses and byres is raised thereby, a tax is put upon their improvements. I think this is a very vital point, and should be considered by the Commission, as I believe farmers would improve their dwelling-houses, sanitary accommodation, and byres, if they got an assurance that the Poor Law valuation of their houses, etc., would not be increased for, say, a period of five years to enable them to reap the benefit of their outlay. Of course, you are aware that the moment a farmer makes an alteration to his out-houses there is a fresh valuation, because the vigilant eye of the rate collector, who is paid by poundage, naturally desires an increase of valuation. I would, therefore, suggest a recommendation by your Commission that legislation should provide that all farmers making proper and sanitary arrangements should not

be rated for, say, a period of five years. There is another point I wish to bring before your Commission, viz.—outside the city of Belfast quite a number of farm-houses are used by artisans, clerks, etc., for summer holidays, but the sanitary arrangements about the houses are very imperfect, and I think legislation should be carried out so that lodgers in farm-houses should not be permitted unless proper sanitary arrangements were effected to the satisfaction of the local sanitary authorities. In fact I know instances where the families leave the ordinary sleeping accommodation and go to out-houses so as to take in lodgers for the summer time, and the milk used in the farm-houses is just left in the kitchen, or any place convenient, and is liable to get contaminated.

9147. This happens on the condors of most large cities?—Yes; and the milk is left in the kitchen, and is liable to contamination.

9148. Do you take any interest in the breeding of cattle yourself?—Only in a small way.

9149. You do not, I suppose, consider yourself as authority on breeds?—No, Sir; I have a few West Highland cattle and shorthorns and other cattle, but I would not consider them up-to-date. I am only an amateur. The reason that I spoke here to-day is that in my thirty-three years of experience as a solicitor, I have been spoken to by farmers and residents of the district as to the deterrent effect of increasing the valuation when improvements are made in cattle byres, out-houses, etc.

Thank you very much. We are very much obliged to you, Mr. Porter.

Mr. W. R. CROSSWILL examined.

9150. The CHAIRMAN.—You are engaged in the dairy trade?—Yes, for twenty-five years.

9151. In what locality?—In Belfast.

9152. In the city of Belfast?—No, in the suburbs.

9153. Are you outside the city area?—I am inside, on the border-line. I am inside for my premises and outside for part of my grazing. The premises are inside the city.

9154. Do you keep your cows for one milking period only?—Partly. I breed a good many cattle myself.

9155. You have land enough to enable you to breed cattle?—Yes.

9156. Do you keep any milk records?—No.

9157. And how do you determine the animals you will keep and those you will dispose of?—By closely looking after one's business one will soon find that out.

9158. By watching the cattle?—Yes.

9159. Do you not think it would be desirable that you should have some definite standard to judge them by?—Yes, I agree with that.

9160. And you think keeping milk records would be helpful to people engaged in your trade?—Yes. I keep my best cows and fatten the ones that are not good.

9161. It appears to me that the keeping of milk records would be good in your case?—We are always in such a hurry in the morning. That is the difficulty about keeping the records.

9162. You do agree that it would be extremely helpful?—Yes.

9163. And that it is quite possible, even whilst attending closely to your business, you might be sometimes misled and form erroneous conclusions as to the cow that will yield the largest quantity of milk?—You can give a fair estimate of that. I always believe in the cow that milks longest, not the cow that gives a large quantity of milk for a short time.

9164. Do you not think, as a rule, that the farmer believes that the cow yielding a large flow of milk for a limited period is the best milker?—I have kept records enough to learn that the opposite is the case.

9165. I am not talking of your own individual view, but taking the case of the man who gives very little consideration to the question, do you not think that the cow that gives a heavy flow for a limited period is the animal that makes an impression on his mind?—Yes.

9166. And the keeping of records would disabuse his mind?—Yes, it would be a very good thing to have milk records.

9167. What kind of bull do you use?—Jersey and Ayrshire for crossing purposes.

9168. What becomes of the calves?—I always have plenty of demand for them. I rear the best myself.

9169. Notwithstanding that the calves are crossed in that way, you have a demand?—Yes. Yesterday I had an order from one man for twelve calves.

9170. No matter what breed?—They know my breed, and have particular ideas about the milk.

9171. It is rather a novelty to me to learn that calves bred from an Ayrshire bull would be in demand?—Anyone that has any experience of the Ayrshires will soon find out their profitableness. The bull calves make very fair stores as bullocks.

9172. You have been breeding cattle for a considerable period?—Yes.

9173. What would the difference in value be in, say, a two and a half year bullock with an Ayrshire cross as compared with a shorthorn cross?—If you take the little fifty shorthorn, there is no difference.

9174. The one is worth as much as the other?—Yes, quite. The cross out of the Ayrshire is worth quite as much as the fashionable shorthorn—I say fashionable shorthorn, because that is not the one that is best for breeding stores. It is a shorthorn bull that has some points about him.

9175. In the show yards?—Yes. I do not think there is the least difference, because the Ayrshire will fatten quicker.

9176. And come to early maturing?—Not quite so soon, but they will carry flesh, and will sell well in the market.

9177. Do you also use a Jersey bull?—I do.

9178. Before we pass from the Ayrshire—do you ever keep the offspring of that breed for milk?—Yes. I tend to sell also.

9179. If you established a breed that was a good milk-yielding breed, do you not think you would be likely to keep that on your own herd? Do you think that the produce of that animal is a better milk-producing animal than the ordinary shorthorn?—It is far better. There is no doubt about that.

9180. How much does it partake of the Ayrshire?—A great deal.

9181. The Ayrshire is rather a narrow beast?—That is quite wrong; she is very wide over the top. That is a Jersey you are thinking of, perhaps?

9182. No.—Of course, there are good and bad. The Ayrshire is very wide over the top.

9183. I am not talking of the cow at all, but of the bull?—The bull is much narrower.

9184. He is narrow to such an extent that his backbone is almost perceptible?—Yes.

9185. The cow is quite a nice animal of beautiful conformation. The bull does not appeal to me so much?—I think that at the present time, in regard to the British cross breed out of a half-bred Jersey, there is no shorthorn at the same age would be any larger.

9186. With regard to the Jersey, what is the result of the cross?—You get a very milky animal, nice to look at, and valuable in the market.

9187. Does it make a good store?—The bullocks don't. I would not recommend the bulls in that case to be reared.

9188. But notwithstanding that fact you get a lot for your calves?—I never send the half-bred Jersey bull calves to anyone to rear; they are sink calves.

9189. Are not all your calves slaughtered at the abattoir?—The half-bred Jersey bulls and the bad calves are. Not any heifer calves.

9190. Do you think it is economically sound to breed an animal that must be sacrificed in that way?—To get the heifers, you cannot help it.

9191. You think that the heifer is such a desirable animal that, on the chance of getting one, you have the cows around in this way?—Certainly.

9192. And still you do not keep these heifers and have them for milking yourself?—I do a few of them; but the fact is, I am tempted to sell them owing to the price I am offered.

9193. Dr. McCORMACK.—What calves do you say are slaughtered in the abattoir?—Only the cross-bred bulls from the Jersey and the bad calves.

9194. The CHAIRMAN.—Have you ever tried breeding the animals a second time?—No, except in one case.

9195. And what was the cross again?—That heifer calf I mentioned, and the bull was an Ayrshire.

9196. So that there are two crosses of Ayrshire?—No, only one—it is a shorthorn, and a Jersey on the dam side.

9197. Are these fancy animals, that are bought for villa lawns for the supply of private households?—Yes, but there are lots of farmers want them in order to keep up the quality of the milk, especially the Jerseys.

9198. Have you known individual cows that yielded milk below the legal standard?—Yes.

9199. Persistently?—Yes. I had a cow that was registered under the Department of Agriculture, and that was what was against her. She gave 1,600 gallons in the year.

9200. That comes up to some of the American records?—The record was kept.

9201. Was the milk of poor quality?—That is right.

9202. What standard did it reach?—About 9.00, and a little better in the afternoon, may be 2.85 per cent. of fat.

9203. It was scarcely ever up to the legal standard?—Not until she came down in her milk.

9204. When the quantity decreased the quality went up?—Yes.

9205. Have you noticed that there is a marked difference between the quality of the morning and evening milk?—Yes.

9206. If you had chance to sell the milk of that cow in the city, and a sample was taken and a prosecution instituted, you probably would have been convicted of selling adulterated milk?—Yes. It is one of the dangers of the trade we are all subject to.

9207. And you would be anxious to get some milk into your bulk sample that would be rich in fat, even though deficient in quantity, in order to ensure that the whole would be up to the legal standard?—That is correct.

9208. And you found it necessary to introduce some fatness of Ayrshire or Jersey blood in order to accomplish this purpose?—The Ayrshire is not so very rich in quality, but you get more milk than from the shorthorn.

9209. The quality of the Jersey's milk is very rich?—Yes. In Scotland at the present time they are keeping records, and they have raised the quality of the milk tremendously. They keep the milk records there, and they have inspectors going round.

9210. Do any other persons engaged in the trade introduce the Jersey bull and the Ayrshire?—Yes, the Jersey is in great demand all round Belfast. We cannot get enough of them.

9211. Are there any pure-bred Jersey herds kept?—Yes. I keep one myself.

9212. How do the bulls sell?—As store bulls. I generally import them from the Island to get the pure-bred.

9213. Is there any Ayrshire herd?—None, except my own. There is one now that has been established outside Dublin. I forgot the name at present.

9214. Do you go to Scotland for your Ayrshire bulls?—Yes. Last year I gave £25 for a yearling.

9215. You bought the bull at a public sale?—Yes.

9216. Of course, you are very careful in the selection of these, and get the best type?—Yes, especially the milking type.

9217. And they are sold in Scotland with a record of their dams' milking yield?—They are, but not all. The man, however, who can give a record will get better prices.

9218. Would you approve of the introduction of that system in connection with the old premium bulls?—Yes.

9219. You think it would be helpful?—All premium bulls should be bred from cows with a record of milk yield of not less than 700 gallons.

9220. You think that would be helpful in increasing the supply of milk?—There is no doubt about it.

9221. Have you any reason to complain of the restrictions imposed by the conditions of this Order?—Not at all.

9222. It is not in any degree interfering to those engaged in the trade?—Not the least.

9223. Is it fair to have the conditions imposed on those who are engaged in the trade within the city area, and to have those who send milk in from outside exempt from the same restrictions?—It is not fair.

9224. That is the generally received view?—Yes.

9225. With regard to the price of milk, have you any trade in the industrial district?—I do. I have three carts at present.

9226. Do these carts, in their rounds, take in a purely industrial population?—One of the carts does.

9227. What quantity of milk would be taken per day in the house of a family with an income of from £50. to £60. a week?—I should say a quart.

9228. Every morning and evening?—In the day; that is taking an average. There are some families which will only take a pint, and sometimes only a pennyworth.

9229. I want to know from you whether you think that is due to limited means or to want of appreciation of the value of milk as a food?—I think it is due to want of appreciation of the value of milk as a food.

9230. They could buy more?—I think so.

9231. It is not absolute poverty that prevents them purchasing more?—Not about Belfast, at any rate.

9232. We are talking about Belfast at the moment. That is rather deplorable from more points of view than one?—It is.

9233. And where there are small children, no attempt seems to be made by the heads of the families to give them a sufficient milk food?—No. We often wonder at the small supply.

9234. Do you provide any milk specially for infants?—I supply a great deal of milk to the Corporation for that purpose.

9233. That is for free distribution or for reduced-price distribution?—It is free to the infants.

9234. What I want to know from you is this, do many people go to the trouble of going to their dairy-keeper and saying—'I want milk for a child in such a way—in bottles?'—Very few.

9235. Even people in good circumstances do not take precautions in that way?—Not if they are sure of the dairy. Many people will visit the dairy.

9236. Before they become customers?—Yes. I consider that the milk taken from the whole herd is better than that taken from any individual cow.

9237. Has the price of milk varied in your experience?—Very little, only this year.

9238. What is the present price?—Fourpence a quart in two of my carts and 3d. or 3½d. in the other cart.

9239. Is that in consequence of the districts in which the trade is carried on?—Yes.

9240. The milk being the same in each of the carts?—Yes, not the slightest difference.

9241. Do you know of any cow-keeper who has an exclusive trade in the poorer districts?—Well, personally I cannot say. There are a lot of men going into those districts, but they will have a few customers in other districts as well.

9242. The majority of cow-keepers, I suppose, have customers in different grades of society?—Yes. It is principally the dealers that go into the worst localities.

9243. Because it has been suggested to the Commission that in certain industrial localities where the population is poor, inferior milk is offered them?—I do not believe that. I do not think anyone would be allowed to sell milk in Belfast under the standard. That is well enough looked after.

9244. You are not dissatisfied with the reputation?—It is not hard when you keep everything right. We have always trouble about the milk being below standard in the morning. There is no trouble about the evening milk.

9245. Do you try to equalise your milking periods?—We do, but it is difficult.

9246. The purchasers like to get their milk the moment they expect it?—Yes.

9247. With regard to the people engaged in the trade, is there much difficulty in getting labourers or assistants?—There is a good deal.

9248. Is that a diminishing or an increasing difficulty?—It is an increasing difficulty.

9249. Is it a diminishing or increasing difficulty?—It is getting worse. In fact, all my boys and men have been started with me. They grew up into the business.

9250. And if you only employed casual labour for this purpose it would be less reliable?—That is so.

9251. Do you find any difficulty in getting them to be cleanly in their habits and washing their hands?—Not since the inspection has become so good. They are just as much afraid of the Inspector as they are of the master, and they are always looking out for him. I must say that it is a great relief to me, for I have less trouble in keeping them up to the mark.

9252. You regard inspection as helpful rather than as a hindrance?—It is very helpful.

9253. With regard to feeding, do you feed grain to your cows?—Yes, a little.

9254. Only a limited supply?—Yes.

9255. Are you a believer in grains for feeding?—Not as a food; it makes a bulk, and it is hard to do without it.

9256. Do you feed roots?—Yes, turnips.

9257. Have you any difficulty in preventing them from tainting the milk?—Sometimes in the spring we have a little difficulty. That is the only time.

9258. Do you feed cakes to your cows?—Yes.

9259. Do you believe that if you fed your cows on poorer food, with less oil and fatty substances, you would depreciate the quality of your milk?—If you force them less they yield richer milk.

9260. A smaller quantity?—There is a limit. If you feed them poorly you will have bad milk.

9261. You will probably have a reasonable supply, but the quality will be poor?—Yes.

9262. And if you give them meals and cakes and other foods, you will get a better quality of milk?—Yes, but if you pass that you will force them into giving more milk of a poor quality. In fact if you

keep a cow in a healthy way, she will give good milk, but if you force her, she will give milk of a poorer quality.

9263. You pasture your cows in the summer?—Yes.

9264. Do you give them artificial food on the grass?—Nearly the whole year, except, perhaps, the month of June.

9265. When the grass is at its best?—Yes.

9266. But when the grass is watery and poor or scarce you have to have recourse to artificial feeding?—That is so. Our land is not so rich in the North. That is another reason why the Ayrshire seems to be better than in the South—the animal does well at poor land. She stands it better than the shorthorn.

9267. Dr. MOORMAN.—Is it cake you give them in the summer?—I have a mixture of my own. I use a good deal of Rubby's cake—a compound cake.

9268. Would you consider 3s. 2d. a gallon a price at which milk could be produced at a fair profit all the year round?—That is good enough.

9269. It would pay?—Yes.

9270. Nothing less would pay?—It depends entirely on when cows are situated.

9271. Take your own position?—Nothing less would pay because we had a lot of extra expenses. The wages are rising.

9272. Do you get that price?—We never got it until this year. That is on account of the dearer food—I didn't get it, at any rate, any other year.

9273. The increased price has not decreased the consumption?—No.

9274. Do you employ any female labour?—Yes, a few women.

9275. Have you ever compared their results with the male results in milking?—No, I don't see much difference.

9276. Are they better milkers, in other words? Do they get more out of the cow?—I don't think so.

9277. I suppose you buy your cows at least?—Yes.

9278. Have you noticed the conditions in which these cows are milked at the fairs? If you buy a cow, she is very full, and she is milked before she goes out of the fair?—Yes.

9279. Who is she milked by?—The herdman or a salesman.

9280. Do poor women come up and ask for the milk?—Yes. There are generally women about the fair for that purpose.

9281. Have you noticed the condition of the vessels into which they milk the cows?—Yes.

9282. They would not be quite up to the standard?—No.

9283. They would be dirty?—Yes.

9284. And the individuals themselves would be dirty?—Yes.

9285. Have you ever inquired what becomes of the milk?—No.

9286. Did you ever drink it?—No. I always thought the milk was used—whether the women use it themselves or sell it, I don't know.

9287. That would be a very fruitful way of spreading disease if the animals were diseased?—Yes.

9288. Do you meet many tuberculous cows?—Not many.

9289. The CHAIRMAN.—Have you suffered any loss from tuberculous cows?—Very little. I have had a few cases certainly; but they are very rare.

9290. Were any of your cows ever slaughtered by order of the Public Health Committee?—No.

9291. Dr. MOORMAN.—Have you had the tuberculin test applied?—Yes.

9292. You don't object to it?—Not at all.

9293. You are rather glad of it?—I am not a believer in the tuberculin test.

9294. As an indicator of disease?—I don't think it can be relied on. I have known a good many cases in which, as far as I could see, it was wrong.

9295. The CHAIRMAN.—Were those cows in which tuberculosis had been developed to such an extent that there was no reaction?—There was no reaction.

9296. That is quite a recognised thing—that when the disease becomes obvious, and is in an advanced state, even the proper application of the test may produce no reaction whatever?—That is the reason that makes me not have faith in it.

9297. That is a recognised condition. Those animals are clinically tuberculous?—There are a good many cases of tuberculosis that you would not notice.

9298. Dr. MOORMAN.—Would it not be valuable in those cases?—I think it is misleading.

9301. It will detect tuberculosis in the early stages?—You might sell a good cow that reacted, and she might be quite healthy.

9302. They cannot react without having the disease?—They have so little of it that they pass into the public slaughter.

9303. The CHAIRMAN.—Even if slaughtered the post-mortem examination shows that they are fit for food?—Yes.

9304. You are aware that if the lesions are not located in certain parts of the anatomy, the entire carcass is not sacrificed?—I am aware of that.

9305. Mr. WILSON.—What would your opinion be regarding the recommendation that has been made very often before this Commission, that dairymen should be licensed?—I think it would be a good idea.

9306. You would approve of that?—Yes.

9307. We had some evidence here regarding what a witness described as the "cuckoo" dairyman?—We have always that trouble.

9308. Would your opinion be in favour of the introduction of special dairy bulls in certain specified parts of Ireland where dairying is the dominant industry?—I think that a few of them anywhere would do no harm. We cannot do without the southern type for breeding sires. I think that the introduction of some bulls, such as Dutch, Ayrshire, or Jersey, here and there, would be very helpful to the dairy trade.

9309. Have you any personal knowledge of Kerra?—Yes.

9310. Will you give us your opinion of them as a dairy breed?—I don't think they are a good dairy breed.

9311. Is that by reason of their being so near the ground or giving too little milk?—Too little milk. The Dexters are better breeders.

9312. I included the Dexters?—They are different animals.

9313. The difference, as I understand it, is that the Dexter is the improved Kerry?—Yes, very improved.

9314. That is really why I was asking the question—if over considerable areas in Ireland you could get the improved Kerry, you might solve the difficulty about the poor man?—The Dexter is a good cow.

9315. Would you approve of a scheme whereby they would be developed?—Yes. There is just a difficulty about the breeding; they are difficult to breed correctly.

9316. Dr. HOOGSTRA.—That is, they are not fruitful?—Not that, but they scarcely ever carry their calves, and there have been so many of these wretched animals. That is the great difficulty about breeding Dexters.

9317. Mr. WILSON.—That is in your own experience?—Yes.

9318. With regard to the milk records, I think you said you did not keep records yourself?—Not at present.

9319. I would like to know what sort of inducement would persuade you to recognise the value of the system of keeping records—is it a matter of expense or trouble?—It is more trouble. There is not much expense involved. If one made a start it would not be so bad as one anticipated.

9320. That is my own experience?—Of course, in Scotland they do that for the farmers.

9321. Is it not the farmers themselves that do it—do not the societies employ the man?—Yes, the society.

9322. Would you not consider it workable in this country, that the Dairymen's Association should initiate a system of milk records in the locality?—Yes, it would be a good thing, I think.

9323. I admit I am one of these people that don't always like going to the Government and begging for grants. This seems to be one of the things we can do ourselves—I would like to know the Scotch system, and carry it out on these lines.

9324. It would be a question of training and instruction and control, rather than of finance?—Yes.

9325. In fact unless something of that kind is done, it is impossible for the Department to adopt the recommendations that you make. You say that it should be required that all premium bulls should be bred from cows with a record of milk yield of not less than 700 gallons per annum; but in the absence of records it is impossible to select the animals?—That is true. These premium bulls are not bred by the likes of me. They

are bred by another sort of farmer who goes in for that entirely, and we all know that the dam of the premium sires, generally speaking, cannot feed its own calf.

9326. In connection with the selling of milk in the street, I take it that it occurs every day that the driver of one milk cart supplies another to make up a shortage in his supply?—It used to be more general.

9327. It is not general at present?—No.

9328. What has made the difference?—The wholesale stores have made the difference. Anyone who wants a few gallons of milk may get them there.

9329. The milk server, if he wanted to make up a shortage, would go to the wholesale store?—Yes. That is done now more than buying on the streets.

9330. Do you know how these wholesale stores get their supply of milk?—Primarily from the country and by rail.

9331. The point I want to make is, that there is a distinct risk—that, say, the Astor Rural District, where they have no veterinary inspection of the cattle, may be supplying infected milk?—It is possible. If you had the inspection there that would be impossible then.

9332. This method of making up the shortage involves a risk—to put it no higher than that—of such uncontrolled milk getting on to any milk trade route in the city?—Yes.

9333. What do you think is the difficulty in the case of the working man getting a supply of milk?—You said it was more a matter of knowledge than want of cash?—I think so.

9334. Take the lower grade where there would be a want of cash—what would your suggestion be to make such people get good milk?—The only way is to help them some way.

9335. Were you in the room when I asked the question about trying to organise a demand in such localities?—No.

9336. The position is this—it has been suggested that some voluntary society or charitably-disposed persons might make an arrangement with a dairyman to bring his cart into a certain street and leave a little milk in the houses?—That could be done.

9337. That would make it easier?—Yes.

9338. And make it cheaper?—Yes. That would have to be a special trade.

9339. It would be an alteration in the conventions of the present trade?—Yes.

9340. If it could be put in force do you think that that would make it easier to supply these people from the dairyman's point of view?—Yes. They would be guaranteed their money.

9341. Yes, and there could be a considerable amount delivered?—Yes. I believe that the great source of disease amongst these poor people is the want of milk, not the poorer class of milk.

9342. Sir STEWART WOODHOUSE.—You spoke of a phenomenal cow that gave a large quantity of milk that was less valuable as fat than the average?—Yes.

9343. But taking the herd generally, as there any difficulty in keeping up the standard of three per cent. of fat?—None.

9344. And that applies generally, not merely to your own herd, but to the average herd?—Yes; there is no difficulty in keeping up the three per cent. when you take the milk of the herd.

9345. The CHAIRMAN.—You told us, I think, that you suffered no substantial financial loss arising from the presence of tuberculous animals in your herd?—Yes.

9346. What is the experience of men in the trade generally? Have you heard of any of your neighbours who suffered from having their animals slaughtered, or being unfortunate in buying cows that developed tuberculosis?—Not from them.

9347. You don't regard it as one of the difficulties of the trade?—Not at all; it would not amount to much. There are a few other things I would like to say. I think winter dairying should be encouraged in some way. I think that it is a terrible loss to our people that large sums of money are leaving our country seasonally. There is one importer in Belfast who imports 25,000 worth of Danish butter in a month; and altogether it is estimated that 425,000 worth of Danish butter is brought in; but this one importer alone bought 45,000 worth last month.

9348. That is an enormous drain on the country?—Yes. That is for six months of the year.

9349. It does not obtain in the summer to the same extent?—No. There is another matter I would like to speak about. I heard a previous witness suggesting that loaves should be made to dairymen and farmers to improve their hygienic.

9350. Do you speak of loaves below 430? The reason I am asking that question is that the Board of Works will entertain applications for loans, but the minimum is 430, from landowners, and it was represented to us that was a sum beyond the necessity or security available for small dairy people, and that some system might be devised for dealing with loaves of from 430 upwards?—My idea is that a great many small dairymen had to go out of the trade because their premises were not suitable.

9351. And they had not the capital necessary to put them in the proper condition?—No.

9352. Is there anything further you would like to say?—There is another thing about the filtration of milk or the straining of milk. I don't think that there is half enough of care taken in the straining of milk. It is very hard to get all the sediment out of the milk, even with the greatest care, and I think that it should be made compulsory that everyone should use the cotton medium or some other medium to take out all the sediment.

9353. The wire strainer is not good enough?—It is no use.

9354. Miss McNamara.—You mean a double strainer?—Yes. I have a good deal of experience of straining, and I find that the filter with the medium of cotton wool is the only one that is effective, and will take out the sediment.

9355. Is the cotton wool thrown away?—Yes, each time it is used.

9356. Mr. Wines.—I would like to confirm what you say—that is the only efficient method. I would like your opinion about winter dairying. In several places the position appears to be that the milk yield is not much above 450 gallons, and at that figure winter dairying is really an impossibility?—It would not pay at that quantity of milk; winter dairying at 450 gallons is not possible.

9357. It is not a business proposition?—No. We would have to get a better milk cow. That is the greatest trouble we have—the quantity of milk the cows are giving. I say it is not profitable.

9358. Dr. MOUGHAN.—Have you any of the Dutch breed you spoke of?—No. I have seen them. They keep them in Scotland and mix them with the Ayrshire.

9359. Is that successful?—Yes.

9360. Do you cook the food for the cattle?—We give them two cooked feeds in the day, and one raw feed.

9361. Have you ever used beetroots?—No, the mangolds are the only thing, and they give very fine milk.

9362. Mr. Wines.—With regard to the question I was asking you about the selling of the milk in the street, you say that the custom has greatly reduced in late years, owing to the wholesale stores?—Yes.

9363. Would it be a hardship to prevent the selling of the milk in the street?—I don't think it would. It would merely transfer the trade into the covered premises or houses, or into the places that you could rely on getting right milk.

9364. That is the point. You don't think it would be a hardship on the trade?—Not a bit.

9365. The CHAIRMAN.—Do you consider mangolds produce rather poor milk?—Yes; I would not give mangolds. You cannot keep up the standard.

9366. You never gave them at all?—No, except in June to a few cows in the house that we were fattening; I don't like the milk from cows fed on mangolds. You cannot keep up the standard.

9367. And you can only give a limited quantity, and you supplement it with foods that contain other constituents?—Yes. The mangolds have the effect of thickening the milk and making it hotly.

9368. It increases the quantity?—It might, but no experience has been so unfavorable that I stopped using mangolds.

9369. Do you feed on hay or straw?—Hay.

9370. Do you find it more economical?—We get it almost for the same price as the straw, and it is more valuable as a food.

Mr. THOMAS ENGLISH continued.

9371. The CHAIRMAN.—Are you also engaged in the milk trade in Belfast?—Yes.

9372. Are you within the city area?—Yes, in the wholesale trade. I do not keep any cows. I am distributing milk wholesale.

9373. Do you pasteurise the milk?—We do.

9374. And it is milk that is raised entirely outside the municipal area?—Yes, as far as I know.

9375. In what condition is the milk generally supplied to you as regards cleanliness?—On the average it is good, and thoroughly clean. Of course, there are cases, no doubt, occasionally where we have cause of complaint, where there is not so much care taken as there should be, but they are comparatively few, and they are getting fewer as time goes on.

9376. How long is it since you established this trade?—I am in the milk trade altogether about twenty years.

9377. In a similar capacity to which you are now?—It is eight or ten years since we put in the pasteurising plant.

9378. Is pasteurised milk popular in Belfast?—It was very unpopular for a long time, because the people were not accustomed to it, and when it did not show the cream on the surface they did not take it, and on account of it being cold also.

9379. They thought it was poor milk?—Yes, but in recent years we find that difficulty gradually disappearing, and we have no difficulty at the present time practically.

9380. What quantity of milk do you deal with in your depot?—Up to about 2,000 gallons per day.

9381. Does it come by rail or road to your depot?—Primarily by rail; we have some also coming by road.

9382. Have you any reason to complain of the manner in which the railway transit is carried out?—We have complained occasionally, when they put the milk into vans with fish or any other material. That is not general, but it is done occasionally; and the means for discharging the milk at the stations is not nearly so good as it should be.

9383. Have you ever found the milk to be tainted by reason of its being carried in unsuitable company?—

I cannot exactly say that I have, because the distance is short, say, about twenty miles.

9384. What is the longest distance?—About sixty to seventy miles is the longest into Belfast.

9385. Does any come from Monaghan?—Yes, and from Coleraine and Armagh.

9386. Have you ever been obliged to reject milk because it was anaemic?—On one or two occasions, but they are very few. Sometimes milk that is mixed by the train journey will throw up a little butter fat on the surface, and these form into small globules, which appear to be what they are not.

9387. The fat globules come to the surface?—Quite so.

9388. Do the cans ever arrive in a dirty condition?—Sometimes they do. Of course, farmers are adopting a different type of can, one that is cleaned very nicely. It prevents any splashing out. In the bad type of can the milk splashes.

9389. If there is an opportunity of the milk splashing there is also a danger of contamination?—Quite so, but the type of can that is coming in prevents that danger entirely.

9390. To what temperature do you raise the milk in pasteurisation?—Generally about 180 degrees.

9391. Is it your opinion that pasteurisation in any way depreciates the food properties of milk?—I do not think so. I have had considerable experience, and I have certainly seen hundreds of children reared on it, and I do not see any ill effects. That is my experience.

9392. It does taste somewhat?—Slightly. Of course, if milk is kept up to a temperature from 70 to 180 degrees, and the machinery is in proper order, and the heater properly clean, there is no danger of any taste.

9393. What do you estimate is the cost of pasteurising per gallon?—I would say a farthing would cover the cost with the quantity I deal with.

9394. But with a small quantity the cost would be considerably more?—The cost of pasteurising milk would be less than a halfpenny per gallon.

3006. Even though done in small quantities?—In doing it in small quantities you have practically the same expense.

3006. Do you sell any milk unpasteurised?—Yes, a large quantity. I take probably seven hundred or eight hundred gallons unpasteurised.

3007. For what purpose is some of the milk pasteurised and others not?—It is according to the taste the milk vendors are doing. For those who are retailing in small quantities the pasteurised milk suits them equally well, and there is less danger of being prosecuted, because the cream does not rise so rapidly, and it does not require such careful watching.

3008. How do you differentiate between the milk to be pasteurised and the milk to be sold pure; do you take the milk from one set of dairies for pasteurisation and the milk from another dairy to sell raw or pure?—Most of the milk from the smaller farmers is pasteurised.

3009. Is the milk as a rule sent in in an inferior condition from small cow-keepers?—There might be an occasional case where that might be absolutely true, but it would not be true generally. In the winter months the smaller places supply raw milk, and consequently we would not give it to a man to read in the street, and that is pasteurised immediately after it came in.

3010. And you would be apprehensive that it would not be as fresh when you get it?—Mixed milk will not keep so long.

3011. Is there any difference made in the retail price of the pasteurised and the unpasteurised milk?—The price is always the same as a rule. There might be a halfpenny a gallon difference at certain seasons. We sometimes charge a halfpenny more for unpasteurised milk, because we have to pay more for it in the first instance.

3012. You cannot fix a price that applies to every delivery?—No, we take every case on its merits.

3013. And the condition under which the milk is delivered is an element that is considered in fixing the price?—Quite so.

3014. What is the variation between the summer and the winter prices?—Generally twopenny and threepence, and in some instances more in the winter than in the summer.

3015. A certain number of traders supplied by you would be vending in the poorer districts?—Yes.

3016. Do they take pasteurised or unpasteurised milk?—A considerable number take pasteurised, and some take both.

3017. Have you any knowledge of the quantity taken in by the ordinary member of the industrial population for a family of from four to six children?—My experience is that some of them take in a very small quantity. I have in my eye a family of eight or nine who only take in about a pennyworth a day.

3018. So that really it is only used as a condiment for colouring tea?—That is so.

3019. And none of the children get a drink of milk?—That is so.

3020. Is that due to want of appreciation of the value of milk as a food, or because their means are so limited?—Many of them could pay for it if they did not spend their money otherwise. I know of a house where there is an income of £4 to £5 a week, and they would only take in about a pennyworth of milk.

3021. And possibly traders in other liquids would get more?—Yes.

3022. Dr. MOOREHEAD.—Are there any young children in this house with the £4 or £5 a week income?—Yes.

3023. The CHAIRMAN.—You would not regard that as a proper bringing up of children?—No. I know of another one, where a woman who was nursing a baby for the mother, who was employed during the day, got instructions to get a quart of milk daily for the child, and get the money for it, and it turned out that the nurse only got a pennyworth of skimmed milk and mixed it up, and some lady inspector complained that the milk in the bottle was inferior, and it turned out that it was skimmed milk, and that this nurse was getting 1s. 3d. for pure milk.

3024. What an abominable fraud?—Unfortunately these things go on.

3025. Dr. MOOREHEAD.—Would a penny buy half a pint?—Practically.

3026. The CHAIRMAN.—Do you think that the trade in milk is increasing?—The demand is certainly

increasing, largely amongst the more intelligent part of the community, but amongst the more ignorant classes of people I do not think that it is increasing. I would say that probably it was on the decrease.

3027. Independent people make no provision whatever for the nourishment of their children with milk food?—They consider it a luxury, and that it is not value for the money, though it is vendible in some districts at threepence a quart in winter. There is no doubt that the same milk is vendible, so far as quality is concerned, in every street.

3028. Do you happen to know of your own knowledge whether or not milk of a certain quality is vendible in the poorer districts exclusively?—That is not so. I heard a statement made here and I was completely surprised. That is utterly false. The inspectors take samples from hundreds of shops that we serve and I know that is so. The milk is equally good all over the town. There is no difference.

3029. I am afraid that the people who take in milk themselves do not exercise much care about the cleanliness of the vessels in which they store it?—That is so, and often at any place, which is in a mixed quarter, they come with vessels that we have to sterilise with steam or have them sent home to be washed.

3030. Would you absolutely refuse to supply the milk?—Yes, over and over again we have done that.

3031. And the milk is put into the scullery when it is taken home, and no attention paid to it?—Yes.

3032. Subsequent treatment seems in some degree to render useless the precautions taken to render the milk clean up to a certain point?—That is the feeling I have had—that it would be a great help if these people could be taught to be clean.

3033. Up to the present the Public Health Authority has no power to follow them into their homes; but, at all events, they have taken some trouble in order to secure that it is delivered to them in proper condition?—Quite right.

3034. And then, of course, the responsibility rests with the purchasers themselves?—Yes.

3035. Is any trade done in separated milk in Belfast?—There are only two persons in that business—another gentleman and myself—and it is only done for a few months during the summer season.

3036. When the milk is very plentiful?—Yes.

3037. For what object do you separate?—We generally dispose of it in cream.

3038. Do you do a trade in cream all the year round?—Yes, largely.

3039. And you are constantly separating?—Only during the summer months. We have not enough of milk for nine months to do it.

3040. How is the cream produced in other periods?—We buy cream from the country creameries for the other nine months all over Ireland, as far as Sligo.

3041. You even go outside the province of Ulster?—Oh, yes.

3042. For what purpose is the separated milk used—is it used as a food?—It is used during the summer months as a food. I sell it at about a penny a quart.

3043. Do people use it for cooking purposes, such as making puddings and milk diets?—They do.

3044. Don't the poor people use it at all?—It is amongst the poor that it is distributed, so far as I am concerned.

3045. It is in the industrial centres it is all sold?—Yes.

3046. Do they even give their children a drink of it?—I think they do during the summer months. We probably sell a hundred gallons a day in a retail shop, and I think it is largely used for drinking and cooking, both.

3047. You sell to retail shops and also to other retailers who have carts going around the city?—Yes.

3048. And to the ordinary street milk barrows?—We have not these in Belfast, I am sorry to say. They would be very useful to distribute milk in the poorer districts.

3049. And perhaps reach a population that are at present not getting a supply?—That is true.

3050. Have they ever been in use in Belfast?—Never.

3051. It is quite a common thing in English towns to see them?—Yes, but unfortunately the great difficulty we have in Belfast is that the type of men that we would like to get to do it is above that work.

3052. With regard to those who keep district shops for the retailing of milk, are they people, as a rule, who conform with the requirements laid down in the

Durham and Milk Shops Order?—Yes. There certainly has been a great improvement in the last few years. They use a better type of vessel, and I think on the whole that there is an improvement, as far as the shops are concerned, from the point of view of cleanliness.

9442. And the supervision of the Public Health Committee has improved the trade from that point of view?—Yes.

9443. They prohibit the sale of articles giving strong odours where milk is sold?—Yes.

9444. And reasonable precautions are taken to prevent flies getting into the milk?—Yes.

9445. And it is a recognised thing amongst those who carry on this trade that they must conform with the regulations, and they are always in dread of the visits of the Inspector?—Yes; they keep their vessels covered.

9446. Have you ever heard of cases where the milk might be stored in one portion of the building; and yet if the Inspector calls to take a sample he is told that none is for sale?—I never heard of any case of that sort.

9447. We heard in other places that device has been resorted to in order to evade the law?—It might be done on a very small scale, but it would be on a very small scale. The only point would be where the party had been restricted from selling milk owing to selling other classes of goods, but I don't think it is general.

9448. Dr. MOORMAN.—Is the pasteurised milk delivered in bottles?—No, in bulk.

9449. In case you don't use all the pasteurised milk?—We separate in the morning.

9450. I did not quite catch the reason why it comes less to sell than the ordinary milk?—It is coming into us late in the day, and it is less valuable than if it came at an earlier hour in the morning.

9451. Of course, there is greater expense involved in the pasteurised milk?—It is very small. You have the steam up for sterilising your cans, and your hands are employed there.

9452. You don't have to get the steam up specially?—No.

9453. The CHAIRMAN.—Steam is essential to your trade?—Yes.

9454. Mr. WILSON.—What happens, after you have pasteurised the milk, to prevent bacteria getting into it?—It is put into the cold stores and covered in a special type of churn—a new American-made churn.

9455. When that milk is taken out on the road to be sent round to the retailer, it leaves your premises in those large sealed cans?—Quite so.

9456. And then it is poured out into vessels which the retailers keep?—That is so.

9457. Does it not seem likely that in going through these various processes that other germ life will get into the milk again?—It is possible, but after all I don't expect that there is much danger of contamination.

9458. The retailers come to your place with their own vessels?—Yes.

9459. Do you make any bacterial analyses?—No, we only test for the butter fat. If we notice anything wrong with the milk we communicate with the Public Health Department and have samples taken.

9460. For instance, if there was a case of tuberculosis in a herd producing the supply from Monaghan or Sligo, have you any method by which you could prevent milk from the tuberculous animal being sold to you?—None. Samples are taken at the railway station.

9461. Because we have had evidence that in Copenhagen the large distributors are in the same position as you are, and they have their own system of inspection, independent of the Public Health Authority?—We don't make any test for tuberculosis.

9462. You have experience not only as a milk vendor, but also as a member of the Corporation?—Yes.

9463. What do you think of the desirability of a municipal dairy?—I don't know. It might be very acceptable to those who have got too much land near the city, but I think there is no difficulty in securing a sufficient supply of very reliable milk in Belfast. It might benefit those people who have more lands than they require, but from any other point of view, we are able to get a sufficient supply that is as reliable as that we can produce under municipal control. I don't see why we should go in for municipal control.

9464. Dr. MOORMAN.—You see no necessity for it?—No; there is sufficient milk for the people.

9465. Mr. WILSON.—With regard to the barrows, what is to prevent any enterprising milk vendor putting them on the road?—There is nothing to prevent him if he can get the proper type of man. I have often thought of it.

9466. Would it not be possible to import a couple of Englishmen to teach the Belfast men?—It might. The Belfast man would think it would lower his dignity to take the barrows about. It is a very good system of distributing milk. Some of the London dairies have three hundred of them.

9467. Dr. MOORMAN.—They can earn good wages?—Yes; I have seen one or two tried, but they gave them up.

9468. Mr. WILSON.—What is your experience with regard to the spread of infectious disease by milk in the city?—Within twenty years the number of cases spread by milk, if the whole truth were known, would be nearly nil. We had several cases, but there is another side to the question that would probably be better left alone, and I believe that when these cases are investigated to the bottom, you will probably find that there were causes in connection with the sewerage system that was a predisposing cause. Take the case of a man serving two hundred and fifty customers with mixed milk. You have a case of diphtheria in one place and the customers supplied by the same milk in other places do not suffer any ill effects, and in a case like that I do not see how you can attribute it to the milk supply. You will find where milk is supposed to have spread the infection that there is always some predisposing cause.

9469. Can you give us your alternative explanation to replace the orthodox theory?—Generally the sewerage is bad. Take the case of the Luskic asylum; I consider that there, there was some person suffering from typhoid fever, and I presume there were some days before it might be found out and it was quite possible that the infection might be carried by the flux. In some cases you find that the sewerage of the district or of the house is bad and that is really the cause.

9470. You would be in favour of the railway companies being encouraged to improve their milk train services?—Yes. We have a bad service in Belfast in getting in an early supply. I think the railway company give you bad facilities for getting in the milk in reasonable time in the morning.

9471. I would like your opinion about the selling of milk in the streets—whether you see any hardship in prohibiting the sale of milk in the streets?—It is not a good system. There is not so much exchange of milk as there was. Where the roads are not dusty, I don't know that there is very much danger of contamination.

9472. Sir STEWART WOOLSCOTT.—The tests you speak of, were they tests for fat?—Yes, with the Gerber instrument.

9473. Do farmers who send you milk from a distance, cool their milk after milking?—Some do, and some don't.

9474. How do they cool it?—By means of running water largely.

9475. Has your trade increased in the sale of pasteurised milk?—Our trade has certainly increased enormously within the past five years, and we do not find so many objections as formerly.

9476. Are there others in town who still pasteurise milk?—No one else in town.

9477. Why is there an increase in the sale of pasteurised milk?—It is because they think there is less danger of germs?—I don't think that has anything to do with it. I don't think they look at it from that point of view. There are a number who do.

9478. The CHAIRMAN.—You don't think the development of your trade has arisen in consequence of selling pasteurised milk?—No.

9479. Sir STEWART WOOLSCOTT.—Do you sell as much pasteurised as raw milk?—Yes.

9480. Miss McNEIL.—You said the temperature was 170 or 180 degrees?—Yes.

9481. For how long is that kept up?—The milk is continually passing through the heater. I would say it would be about five minutes.

9482. That is a fairly high temperature?—Yes.

9483. We have had some evidence to indicate that a lower temperature than that, with a longer exposure, is a more satisfactory method from the point of view of the seller?—We find this method satisfactory.

9484. You think there is something to be said for the prologuism of the lower temperature?—It is the best means of keeping the milk.

9485. That is why you pasteurise milk—because you want it to keep?—Yes.

9486. The pasteurisation is done in very large quantities?—Yes.

9487. How do you secure that it is all exposed to an even temperature?—The heater is going on with centrifugal force. It is about three-eighths of an inch back on the heater, so that it is all exposed to it.

9488. It happened to come across a large concern dealing with milk in Amsterdam last year, and they apparently pasteurised all the milk, and besides that they took precautions to know through one of their representatives that the milk is produced at the farm under certain conditions which they consider satisfactory. Do you yourself know the conditions of the farms from which you receive your milk supply?—We know of a good number, but not all of them.

9489. You don't require any cut to produce evidence that the milk is satisfactory?—No.

9490. Don't you think that is desirable?—I don't know that it is. The Inspectors, of course, in the districts have, I think, been doing their duty thoroughly well, that is considering that the Order has only been in force for a short time; and there is certainly a vast improvement within that period and the improvements are going gradually on. The farmer is not going immediately to pull down his byres to please every faddist and retold them again without seeing what he is going to do.

9491. Don't you think that it would be desirable that there should be some evidence given by the producer to the wholesale dealer of the Local Authorities' Inspectors having been satisfied with the conditions under which the milk is produced?—Yes.

9492. Do you pay for milk, as they pay it elsewhere, on the butter fat or bulk?—All milk that is over the standard we pay the same price for it, according, of course, to the time of delivery. We require all milk to be over the standard. We have from time to time prosecutions for milk adulterated with water.

9493. Have you instituted these prosecutions yourself?—No. The Public Health Committee take the proceedings.

9494. The CHAIRMAN.—You report to them?—Yes. We test them and report to the Public Health Authority, and they generally take drastic steps to prevent that occurring very often. We do not give the farmers any warning if we find the milk has been tampered with. We simply communicate with the Public Health Committee.

9495. Miss McNEILL.—Some evidence has been given with regard to separated milk and its sale leading to the adulteration of new milk?—I don't think there is any such thing done in Belfast.

9496. I don't say it is done, but do you think if the use of separated milk were encouraged that there would be a danger of its being used as an adulterant?—It might be done in England.

9497. A dealer may say the people want a milk of 8 per cent. of fat, and he simply brings the milk to that percentage?—I could not afford to do that, because I have less competition from other vendors and I would be the sufferer myself, because I would ruin my own business.

9498. You think if the supply of separated milk for families generally, and not for babies and young children, were encouraged, the risk of its misuse would not be very great?—I don't think so.

9499. The CHAIRMAN.—In testing the milk supplied to you from the poorer dairies, do you find that it is lower in butter fat than the milk coming from the larger dairies, where the cattle are better fed?—My experience sometimes has been the opposite. In the small farms very often the feeding is produced on the farm and the supply of milk is better than in the case of those who supply three times the quantity.

9500. Do you find, when testing the milk coming in in the morning, that there is a marked difference be-

tween the better lot of the morning milk and of the evening?—Yes; we generally find it is as about three to four.

9501. So that it is quite a recognised thing in the trade that the evening milk is higher in butter fat than the morning milk?—There is no doubt about it, and we find a variation in the quality of the milk of the same cow, say, after a cold night.

9502. Is there any other point, Mr. English, to which you wish to direct the attention of the Commission?—With regard to outside inspection, we have discussed the matter in the Public Health Committee, and I am entirely in favour of it—through inspection from a central authority.

9503. Mr. WILSON.—Are you a member of the Public Health Committee?—Yes. I hold that the sanitary officers' duty ought to be more of an educational character than making victims. I think their duty should be more to try and induce the farmer to carry out the provisions of the Order, because after all there has been a considerable number of farmers who have been following a certain practice for a long time and it requires inducement to show them that it is for their own benefit to keep their premises in proper order. That kind of policy would probably do more good.

9504. A policy of lead rather than drive?—Yes. The difficulty is that if this thing is pushed many of the farmers who are in a fairly independent position might go in for graining and stores. I think we should make the inspection general where butter is produced as well as milk. I have seen instances where the Inspector was a bit severe, and they produced buttermilk and I think that that should be included in the Order. I had an instance last night of a gentleman who receives about one hundred gallons of milk from two small farmers, and they said, "if we are going to have this trouble we are going out of the trade." Their byres, I understand, are not in good order. If they get a loss of £50 or £100 to put up proper byres it would be a good thing.

9505. Do you think they know if such loans are obtainable?—I don't think so. Most of them know they can borrow money for hay-sheds, but they don't seem to know that they can borrow money for byres. There is a vast amount of ignorance on the matter. If you are going to have milk inspection I think we should go the whole hog. About 500 gallons of cream come into Belfast weekly. That means the produce of about 3,000 cows, roughly, and before we talk about local inspection I think cream should be under the same control as milk. I cannot see any difference.

9506. The CHAIRMAN.—What I would hope for would be that the application of the Order should be universal, and that all milk and milk products would in every instance be under the same administration?—Yes, quite right.

9507. That, no doubt, would involve your objection of inspection from the point of view of covering the portion of the product only and leaving another free?—That is my own idea—that it should be made general all over Ireland.

9508. Do you think that it should be controlled by a central authority?—Yes. We have been obliged this winter to draw supplies of milk from co-operative creameries, and you have heard Mr. Skille speaking of the "cuckoo" men. We were obliged to draw a considerable quantity of milk in the winter from co-operative creameries, and that comes from various sources. It is pasteurised and comes into use, and I cannot see how we can have the sources of supply inspected from here.

9509. You think the inspection from a milk commission district would be much more expensive than if the inspection were universal over the whole country?—Yes. In England and Scotland they do not inspect outside their own boundary, except in certain cases. I believe that inspection should be carried out thoroughly.

9510. And it could be done efficiently and economically only under the control of a central authority and the universal application of the Order?—I think that is so.

Dr. ANDREW TRIMBLE. *J.P., continued.*

9511. The CHAIRMAN.—I understand, Dr. Trimble, you wish to make some statement?—Yes. I wish to give a very brief outline of the work that is done in

connection with the Milkmaid Milk Fund for poor children. The Fund is not chargeable to the rates; and the reason I desire to bring this before you is

because I saw some reference to the question of the application of Municipal funds to the relief of poor children, and I wanted to show you what was being done in a voluntary way in Belfast.

9512. That was a question I asked—whether the witness thought it a proper expenditure to have public funds devoted to such a purpose?—I want to show how our system works. This Fund began owing to the fact that the Borough of Belfast decided to adopt the Notification of Births Act, and a very short experience of the working of it revealed the fact that very often children needed, not so much to be helped through good advice as by giving them good milk. We found that we had no means by which we could give children that were in need of milk a supply from the rates. Moreover, we saw that there were a great many cases of temporary poverty through the parents being out of work, and in these cases we thought it would be wise if we could promote a small fund which could be drawn on for the needs of such children. During the year 1911 we relieved in this way two hundred and eighty-four children, and we issued tickets representing 13,516 pints of milk.

9513. Through what channel?—Through the channel of the lady visitors of the Public Health Committee. There are seven lady visitors told off in connection with the Notification of Births Act. When a case is notified to the medical officer he decides whether the child *prima facie* may need the help of his lady visitor, in the first place, to give advice as to the rearing of the child, and if in the course of her investigation she finds that for any reason the child is in need, she may give the parents one of these tickets, or as many as are required, each representing a pint of pure raw milk. Subsequently the Food and Drugs Inspector goes and takes a sample of the milk.

9514. Do you make provision in the first instance for the sale of this milk by a certain vendor?—No, sir. We see if the milk is required, and then the Food and Drugs Act Inspector sees if it is up to standard.

9515. Dr. Macdonald.—Where is that milk got?—In a milkshop. These tickets will be honoured by any milk vendor in Belfast. He brings them to the Town Hall at the end of the month and gets their equivalent in money.

9516. Is this a branch of the Women's National Health Association?—No. It is totally separate. I want to say that it neither overlaps nor rivals the work of the Women's National Health Association; that this help reaches a class of people that the Women's National Health Association cannot touch.

9517. Where do you get funds?—We depend entirely on voluntary subscriptions.

9518. The CHAIRMAN.—How are the lady inspectors selected?—From the official female sanitary inspectors of the Corporation. The administration of the Fund does not cost as a farthing, except for the printing of the tickets.

9519. But the Notification of Births Act gives these ladies an opportunity of realising where help is required?—Yes. And where they find need they give one or two tickets, until they see that the necessity for such milk ceases; and each day, as part of their duty—although it is not part of their official duty—an entry is made in this Report-book of particulars regarding the families who have been helped by the Fund—the names of the people, the income of the family, the employment of the parents, and the reasons for giving the milk. What we seek to find is rather the people in temporary difficulty.

9520. Sir SEYMOUR WOOLHOUSE.—Is the milk paid for by voluntary subscriptions?—Yes. That book containing the particulars of the people who are helped

is laid on the table of the Public Health Committee. There is no difficulty in carrying on the work. We get money from people most readily; but mainly we were put on our feet by having one or two benefit performances by children at dancing academies, and we had one football match.

9521. Miss McNAMARA.—How much do you spend in this work?—We spent 480 last year, and it taken from £80 to £100 a year. It is only temporary relief, and we try not to overlap the Poor Law Authority or rival the Women's National Health Association in our work.

9522. It is merely that you may give help to those who come under the observation of your own sanitary inspectors?—Yes.

9523. The CHAIRMAN.—And you have money at your own disposal?—Yes.

9524. Do you find that the field of your usefulness is circumscribed by lack of funds?—No.

9525. You have been able to deal with every case up to the present?—Yes, we have ample funds to go on with.

9526. What I want to know is this—do your lady visitors know that only a certain sum is available, and do they have to restrict their assistance to a certain number, or do they give it indiscriminately?—They state the reasons why they give it.

9527. I know; but they know that only a limited amount of money is available, and say, "if we have two hundred children, that is as much as the fund will provide for."—They are warned that the amount is limited, and only to give the milk in acute cases. The fund needs to be saved for by some one individual who makes it his fund, and I make it my fund, and unless this were done the thing would fall through.

9528. It needs someone who is enthusiastic about it, in order to see that the fund is properly administered?—That is so. The medical officer has that fund to use at his discretion for any case of poverty, but preferably cases of poverty that are only temporary.

9529. It is a most excellent thing?—We do not restrict the milk to the children. We give it to the mothers also if necessary.

9530. Sir SEYMOUR WOOLHOUSE.—Do the inspectors give a useful knowledge of the rearing of the children?—That is part of the duty of the lady sanitary officer. In order that there should be no "one manism" about the fund, I asked four of the members of the Corporation to be trustees of the fund. We have an account opened in the Belfast Bank. They give us a small interest on the floating balance, and any too of us sign cheques.

9531. You did that for the purpose of diffusing interest in the work, and getting a larger number of people interested in it?—Yes, and to put it above suspicion, and also that if I were removed from the Corporation there would be other trustees in charge of the fund.

9532. I think it is a most excellent system?—There are some of the entries in the book to which I have referred—"Seven in family; father, labourer; mother, spinner; mother suffering from phtisis; baby two weeks old; baby bottle fed."—"Father out of work; mother in poor health from insufficient food; father, labourer; mother emaciated; illegitimate baby; milk given to mother; earns some money."—"Father delicate; out of work, three in family; father, labourer; mother, spinner; out of work; living with married sister, no other help; milk given until mother gets work."—"Father just started spell of work; father, holder up; six in family; youngest in family 34 months; one boy came T. a week; mother died at baby's birth; baby bottle-fed; nursed by old woman at home; at present, baby very ill."

Mr. ROBERT STEVEN examined.

9533. The CHAIRMAN.—You are resident in the Crumlin district, Co. Antrim?—Yes.

9534. Are you engaged in the milk trade yourself?—No.

9535. But you have some knowledge of the dairy cows that are in the district?—Yes, and formerly I kept a good many dairy cows, while my wife was living.

9536. You have only recently abandoned the trade?—It is only eight or nine years since I stopped keeping so many, but I have been in the habit of rearing two calves to every cow.

9537. You keep cows at the present time?—Yes; but not very largely.

9538. In regard to the milk yield, do you think it has increased or diminished?—It has decreased. In a great many cases we have a good yield still.

9539. But the average yield would be less than it was fifteen years ago?—Yes.

9540. To what cause do you attribute that change?—To the premium bulls of non-milking strain.

9541. You refer to the bulls introduced by the Department?—Yes.

9545. And you think they have an injurious effect on the milk-yielding properties?—Some of them. There are some of the premium bulls from which I have reared splendid cows, especially if the dams were good themselves.

9546. You rear your own cows?—Yes, all.

9547. And have you kept milk records?—I have.

9548. And for a considerable time?—Since the Department commenced the dairy scheme.

9549. What have you come to regard as a reasonably good yield, taking the range of the cows that you have reared?—I have reared some that have given over 1,000 gallons. I have a pedigree shorthorn that gives 815 gallons.

9550. That is a very good shorthorn cow?—Yes. She gives very good milk, and a good quantity. That is for the year, and not for the lactation period. For the lactation period it would be a little under 700 gallons.

9551. The fairest way is to take it for twelve months?—Yes.

9552. Have you had many shorthorn cows yielding up to that standard?—None.

9553. Did you breed this cow or buy her?—I bought her a yearling heifer.

9554. Did she come to you with a milking record?—No. She turned out to be a good milker after the first calf.

9555. Have you reared calves from her?—I have.

9556. Had she any bull calves?—Two.

9557. How have they done?—One I sold that got a premium here and did extra well; the other I have at present, a very fine calf.

9558. Did it seem to be appreciated by the purchaser buying the bull that the dam's milking record was given with him?—There was no sale for dairy bulls at the time. He was sold with the other shorthorns on account of the mother being a registered dairy cow.

9559. You got no enhanced price by reason of the fact that the mother was a good milker?—No.

9560. He was sold on his merits?—Yes, and as a premium bull.

9561. Do you think if such an animal were to be sold now, when the question of milk yield is being considered most generally, would more attention be paid to a bull with a milking record?—I think so; but owing to the premium given for a registered dairy bull being only £10, as a rule, a great many of the farmers prefer to get the extra £10.

9562. And in your opinion that is not the best way to promote a milking strain, by giving a reduced premium?—No; I think the premium should be increased.

9563. You would encourage the keeping of milk records by an increased premium to the bull that was produced by a cow with a good milking record?—Yes.

9564. I quite agree, and you think the Department's scheme in giving reduced premiums is not meeting the case generously?—Certainly not.

9565. Do you think it possible to breed a cow, even outside pedigree, that would fulfil the requirements by producing good more stock, and, at the same time, a good milker?—There is no doubt about it.

9566. You have no doubt upon that point?—No.

9567. You breed cows other than pure-bred short-horns?—I do.

9568. And do you institute any comparison to enable you to determine whether these cows are as good milkers as the pure-bred shorthorns?—I consider they are a great deal better. I have experience for over thirty years in breeding from shorthorns or cross-bred bulls—from really good dairy cows—cows that give a very big quantity of milk, and as long as I was breeding from cows bred in that way I was selling them at four years old, after calving, at an average of £30. When I commenced to breed from premium bulls I bred some from one premium bull, and no matter what Show I went to I was sure to come out with the first or second prize.

9569. You kept this bull yourself?—Yes, I had him for three years—a premium bull. I kept him on far cows. I sold one of them at four years old, springing, at £15 10s. I had another premium bull, one of a cow that gave over 1,000 gallons. She will be calving in about twelve months from last calving. She calved in May last, and she is from a pure-bred shorthorn bull. I have had several shorthorn bulls, one a non-premium bull, that no matter what cow had a calf to him, there was not a single good cow. I had one premium bull that had just one calf only, that was a good dairy cow.

9570. And you would attribute that to his back breeding?—Yes.

9571. So that if you want to improve matters you must keep records, and you must know what line you are buying from?—Yes.

9572. That seems quite reasonable. Do you complain of the trouble of keeping milk records?—There is a little trouble, but not much. We only take the record one day in the week, morning and evening, and, of course, the Department's Inspector comes round occasionally and sees the cows milked, weighs it, and looks over the book.

9573. Are you keeping records of your cows now, and have you had them inspected under the Department's new scheme?—I have at present just two registered dairy cows myself. I had one provisionally selected, a two-year-old heifer. She was bred from a great dairy cow that lifted four first prizes of the Department last year in the North of Ireland. She was carrying this calf to a non-shorthorn bull, and the calf was tested last year and failed, but she is still on trial.

9574. She has not yet produced a calf herself?—The heifer had a calf.

9575. And why do you say she failed?—She failed to come up to the standard in milk and butter fat. She gave poor quantity of milk. This is from a cross-bred bull. I hold it is not breeding but strain we require. I would prefer the shorthorn to breed from if we had a milking strain.

9576. You would prefer a pedigree bull if you were certain that he came of a milking strain?—Yes.

9577. But I suppose you have come to the conclusion, from your experience, that it is difficult to get that animal at the present time?—I certainly have. I may say that I brought six shorthorn heifers and only one was any good.

9578. That shows the great difficulty there is in securing a milking strain in shorthorns?—Yes.

9579. That only one of the six turned out to be good?—That is so.

9580. Do you believe that if you bought a similar number of heifers bred differently you might get a larger number of good milkers?—Yes.

9581. You do not engage in the milk trade at all now?—No.

9582. Was that for family reasons?—Yes, all were strangers about the house, and you could not get the milk looked after. After my wife died I could not get my butter properly made or sold.

9583. Is there any other aspect of the question, Mr. Sorrell, to which you would wish to direct the attention of the Commission?—Well, there is one cow in particular I had, an extra good dairy cow, and as long as we reared calves from well-selected dairy bulls, or bulls bred from really good milk cows, I had good calves that turned out good cows. One of them, for instance, was down in Belfast after being ill before the Show and she got two second prizes. I sold her to a man, and he got two first prizes with her. When the calves from that cow and premium bull came out heifers, they looked well, but were very poor dairy cows. I sold one I sold one at £15 10s., and the other I sold at £18, a snapper. I had a whole lot of heifers that I did not think it worth my while to keep at all, and bred from that bull.

9584. Your experience would go to show that the number of premium bulls that come from a milking strain is extremely limited?—That is so. I bought one non-premium shorthorn bull. I only kept him for one year; he left a lot of splendid dairy cows, as I had the big premium bull. I had some heifers served, but they had no better calves. No cows from that premium bull are good milkers.

9585. Did you know anything of his record?—He came from a milking strain. I am referring to the non-premium bull.

9586. And you believe from your experience that unless you make a good milk cow with a good milking strain, there is not much chance of producing a good dairy cow?—No.

9587. Do you attach almost as much importance to the back breeding of the bull as to the dam of the calf?—I do not think I would. I think if I could get a record from the bull's dam, and had a good dairy cow, that would satisfy me.

9588. That would be a reasonable precaution to take in order to breed good milkers?—Yes. Some bulls in my experience seemed to breed to themselves. The bull that was sire to the 1,000 gallon cow, if he served a bad milk cow, more than likely the calf would not be better than her, but if he got a good dairy cow there was no doubt the offspring would turn out a good milker.

Mr. JOHN MAXWELL continued.

9490. The CHAIRMAN.—You are Dairy Inspector under the Larnie Urban District Council?—Yes.

9491. And I see you have forty-two persons registered as cowkeepers in your Urban District?—Yes.

9492. And one hundred and fifty-two cows?—Yes, or an average of 3·6 cows for each person.

9493. Have you any difficulty in getting cow-keepers to conform with the regulations of the Dairies and Milkshops Order?—In some cases, but not very much. Before the Order came into force, we had a set of regulations on the same lines, and they brought the cowkeepers up to a fairly good standard, so that when the Order came into operation it was not necessary to make very many alterations.

9494. The condition of things produced by your own regulations had brought them almost up to the standard required by the Order?—Yes.

9495. With regard to the habits of the people engaged in the milk trade, do you find much difficulty in getting them to observe habits of cleanliness?—It is difficult to bring them up to the standard one would wish. The standard of cleanliness in our district may be described as fair.

9496. Does it require constant supervision to keep up a reasonably high standard?—Yes.

9497. Do they keep the vessels in proper condition?—In pretty good condition considering the facilities they have for keeping them.

9498. They have no steam, of course?—No, or suitable building in which to cleanse or dry the milk vessels. That is carried out in the washery of the private houses, which is not a suitable place. In addition to the supply produced in the urban districts there are some cowkeepers who reside in the rural district and are purveyors of milk in the urban districts, and the number of cows kept by these is one hundred, so that the milk supply of the Urban District is derived from fifty percent and the number of cows furnishing the supply is two hundred and fifty-two. We get one-third of our supply from cows in the Larnie Rural District.

9499. Is the Order in existence there?—Yes.

9500. Is it efficiently carried out?—I cannot say.

9501. Have you any difficulty with the milk coming in from the outside areas?—No.

9502. And so far as you know, no outbreak of disease has been traced to the milk?—No. When inquiries into the cause of infectious disease we find that the family has been supplied by the dairies outside the district, but the same thing might apply to the family supplied by a dairy inside the district.

9503. What I want to ascertain from you is this, when such a case as you indicate has been discovered, does your Medical Officer go out into the Larnie Rural District for the purpose of investigating the condition under which the milk is produced?—No.

9504. And no attempt is made to trace the cause of infection at the source where the milk is supplied?—We have no power to inspect in the Rural District.

9505. You recognise that you have no power of inspection outside your own area?—Yes.

9506. You would need a Magistrate's Order to empower you to inspect outside, and nothing of sufficient gravity has ever arisen to warrant you in taking any such step?—No.

9507. What price is the milk sold at?—One shilling a gallon all the year round.

9508. Is there any labour population in Larnie?—There is a fairly large industrial population engaged in the linen trade.

9509. Have you any knowledge of the quantity of milk consumed by a family with a reasonable income, say from 25s. to 30s. a week?—No.

9510. Do you think that the children of the district get as much milk as they reasonably require?—I don't think they do.

9511. Is that due to the fact that the food value of milk is not appreciated, or is it due to want of means?—I think it is rather due to want of proper appreciation of the food value of milk.

9512. Can you suggest any means whereby that knowledge could be disseminated more widely than it is at present?—By educating the people as to the value of milk as a food, principally for children.

9513. Has your Authority ever had occasion to order the slaughter of tuberculous cows in any of the dairy yards of Larnie district?—No. Quite recently a case

came under my notice where the owner of a milk cow employed a Veterinary Surgeon to apply the tuberculin test. The cow re-tested, and on the advice of the Veterinary Surgeon the owner gave over the animal to the "knacker." I saw the cow opened, and the internal organs were actually rotten with tuberculosis, and also the udder.

9514. Do you make any examination of the udder to ascertain what its condition is?—No.

9515. That is obviously a case in which the veterinary inspector would have been of enormous value?—Yes. From outside examination no one would say the udder was wrong.

9516. There was nothing to indicate that the udder was tuberculous from a superficial examination?—No.

9517. Mr. WILSON.—Why did the owner wish her to be tested?—She was working.

9518. There was evidently something the matter with her?—Quite so.

9519. The CHAIRMAN.—And, of course, it is not only possible but actually true that for a period the cow's milk was sold in the town of Larnie?—It was being used principally by private families.

9520. I suppose the private family has no more right to be poisoned than any other section of the community?—No.

9521. Mr. WILSON.—This is quite recently?—It is three months ago.

9522. The CHAIRMAN.—Had he a large number of cows?—Only a few cows, the milk of which he used principally about his own house.

9523. Mr. WILSON.—It would be exceedingly interesting if a note was kept of the people who had taken the milk of that cow before the animal was slaughtered, because it is more than probable that they will die of tuberculosis.

The CHAIRMAN.—All events their chances have been greatly enhanced. When this discovery was made, did your Local Authority realise the importance of having a veterinary surgeon to deal with a similar case?—They have taken no action in that direction as yet.

9524. Did you report to them what you discovered?—I did not, because it came under my notice in a private matter than in an official way.

9525. But, at the same time, do you not think it would be more likely to influence them to appoint a veterinary man if they had knowledge that as their own beefsteak a portion of the community had been subjected to danger, by reason of the Council not carrying out to the full the provisions of the Order?—I mentioned the matter to the members in a private manner, but they did not take any action.

9526. Do not you see the necessity, at all events, of having safeguards to secure that such a thing should not occur again?—Personally I believe that there should be whole time veterinary surgeons appointed. That is, one or two to each county, who would devote their whole time to the testing of animals of which they had any suspicion, for tuberculosis, and power to award compensation for any cow that re-tests.

9527. You said this cow did re-test to the tuberculin test?—Yes, very decidedly.

9528. Because we have had evidence before us that was rather contrary to that—evidence that animals that were suffering from obvious tuberculosis in an advanced stage do not re-test at all.

Mr. WILSON.—I think he said "may not."

Witness.—There was a veterinary surgeon present when the cow was opened, and he recognised that all the internal organs were badly affected with tuberculosis.

9529. Mr. WILSON.—Had any bacteriological examination been made of the cow's milk before testing?—No.

9530. The CHAIRMAN.—Do you ever send samples for analysis?—In the Larnie Urban District, the police do that. They are the Food and Drugs Inspectors.

9531. You have no authority?—No.

9532. As a matter of practice, do they take the samples pretty regularly?—Yes, they take eight or ten samples on an average every quarter, and adulteration has been practically nil in the district.

9533. No cases of adulteration have been proved against any purveyors of milk?—No.

9630. Do you think it desirable that the application of the Order should be uniform in every district?—Yes.

9631. And that a veterinary surgeon should be a member of the staff on each District Council in order to secure that the examination of the cows should be made periodically?—I would say one or two to each county—whole time officers, to supervise the dairy inspectors.

9632. Your suggestion would be that when cases of suspicious arise, the lay inspector should communicate with the veterinary surgeon and demand his attendance?—Yes.

9633. I am afraid one or two for each county would hardly be sufficient?—Whatever number would be necessary.

9634. You do not restrict the number?—No.

9635. You only want to do it as economically as possible?—Yes.

9636. Mr. WILSON.—You say in the summary of your evidence that after three years' enforcement of the Order, the possession of a recognizably tuberculous milk cow is a milk band should be made a statutory offence?—Yes. I have held that doctrine for a considerable time.

9637. After the due promulgation of the Order, that there should not only be no compensation for a tuberculous cow slaughtered, but that the owner of the animal should be fined for keeping her in his possession?—Yes; the same as a man who exposes a diseased carcass for sale.

9638. On the other hand, if we are to get these animals weeded out, there should be some inducement to the small man to come out into the open and take his animals to the veterinary surgeon, and if they are slaughtered for a public health reason, compensation should be paid?—Give compensation for the first three years, and by giving compensation for that time you would enable the dairyman to free his herd; but at the end of three years something as you suggest would be desirable—that the dairyman who come forward should get some compensation, but not to the full.

9639. So long as he volunteers the information that his cow was not in good health and that he wanted her examined, that he should not be prosecuted?—Yes.

9640. But if the veterinary surgeon discovers such an animal in the course of his inspection, it should be a statutory offence?—Yes.

9641. Sir BENJAMIN WOOLHOUSE.—Is there a dairy inspector in your district?—I am the dairy inspector.

9642. Mr. WILSON.—You mention in your summary of evidence something regarding the condition of the small cowsheds?—Yes. The majority of the small cowsheds are situated in back yards. They are surrounded by other buildings, and quite close to them in many cases are manure heaps, piggeries and other sources of pollution which render the air foul and unhealthy, and must but have an injurious effect on the health of the cow and the purity of the milk supply. What I would suggest would be that there should be an annual housing of the cowsheds, and that no licence should be granted unless the premises were in a satisfactory condition.

9643. You also give the figures, that in the year 1910 89.54 per cent. of the cows slaughtered in Belfast were affected with tuberculosis?—Yes.

9644. We had the figures in evidence before us. We had it quite clearly proved that the number of tuberculous cows slaughtered had rapidly increased in the last three years. By three times in three years?—Yes.

9645. Can you suggest whether there is any tendency for the country cowkeepers or cattle men to send tuberculous cows into the Belfast market?—Quite the contrary. I think there would be more inducement to have them slaughtered in the country districts where the inspection is not so rigorous.

9646. The CHAIRMAN.—And more dangerous to the profitable sale of the animal?—Yes.

9647. Mr. WILSON.—It becomes difficult to account for this rapid increase in Belfast?—Well, it might be that some of the butchers are dealing in a doubtful class of cattle. I have heard that it is quite a common thing to buy cattle from 42 sh. to 47 sh. a head.

9648. The third rate city butcher?—Yes.

9649. You would suggest to us that the third rate city butcher would go into the country and buy these inferior beasts, and bring them into Belfast on the risk of getting them passed?—Yes.

9650. And if he got a fair proportion of them through, he would still have a profit?—Yes.

9651. That would tend to account for the increase of tuberculous animals slaughtered in Belfast?—Yes.

9652. You are also of opinion that Article 6 of the Order leaves too wide a loophole?—Yes. I think it is a pity that it was ever inserted in the Order, because it leaves too wide a loophole through which to escape from the strict requirements of the Order.

9653. Sir BENJAMIN WOOLHOUSE.—Where do you get the 10 per cent. of the cows slaughtered in Belfast?—I took it from a paper read by Dr. O'Neill at the Sanitary Health Congress. The figures are for 1910.

9654. The CHAIRMAN.—I do not think your figures are much at variance with the evidence given before us. Is there any further evidence you would like to give?—I think the inspectors under the Order should have power to take summary proceedings without reporting to the Sanitary Authority, and that if they find an offence against the Order they should have power to summon without reporting to the Council.

9655. You think that leads to delay?—Yes.

9656. Have you anything else at the back of your mind? Do you think that when a report of that kind is presented to a Rural or Urban Council, some friend of the person concerned may secure the attendance of some of their friends at the Council meeting, in order to secure that no order should be made for prosecution?—That can be done, but I have no experience of it in the district in which I am engaged.

9657. You have no complaint as to the administration of the Order yourself from that cause?—No.

9658. And it would be more likely to arise in a rural district than in an urban?—Yes.

9659. Because the men in the urban district would not be engaged in a similar trade, and they would look at it from the public health point of view, regardless of consequences to individuals?—Yes.

9660. But in the rural district a distinctly contrary state of things exists; there are men in the same trade on the Council?—Yes.

9661. And until human nature becomes a little more perfect this will continue?—Yes. The same thing might apply to the Borch as much as to the Urban or Rural Council.

9662. I did not quite take them into my parry, but I have no doubt that magistrates are composed of flesh and blood like other people. Have you ever reason to complain that when you bring cases before magistrates, they are not over sympathetic, or inclined to impose sufficient fines?—The fines are too small—6d., 1s., and 2s. 6d.

9663. And these prove no deterrent whatever?—No.

9664. It is a case of "Not guilty, but do not do it again"?—Yes.

Mr. WILLIAM A. BELL, J.P., continued.

9665. The CHAIRMAN.—I understand you are Chairman of the Belfast Rural District Council?—Yes.

9666. With regard to this question of outside inspection, does any hostility exist as you Council to the officers of the Belfast Public Health Committee going into your district for the purpose of making an examination in case of the milk supply being a suspected source of infectious disease?—Our Council resent that deeply.

9667. For what reason?—Because we have properly qualified officers of our own. We have, under the

Dairies Order, Mr. Barry, who was examined before you. The Rural District Councils of Castlereagh and Belfast employ these gentlemen at a salary of £250, and we consider him well underpaid. He is doing his work splendidly. We do not think there should be any friction between the officials of the Corporation and our officials, but that they should work in harmony, and I come here in regard to the statement of Dr. Thomson, Chairman of the Public Health Committee. With regard to our District Council, we offered no opposition whatever to the Belfast Public

Authorities inspecting our district. In fact, it was all the other way, and I have evidence here to prove that that was the case in connection with this outbreak of diphtheria that was mentioned by Dr. Thomson in his evidence before you.

1908. You are as anxious as the Public Health Authorities to assist in an investigation to discover the source of an outbreak?—Yes. I will show you how our Council went into the matter.

1908. Are these extracts from the minutes you are producing?—They are reports from our officers. The first is from Mr. Barry himself. We desire nothing better than that I should read them for you.

"Report of Mr. Barry, Veterinary Inspector, dated 16th June, 1911—

"I was informed on 15th December that several officers of the County Borough of Belfast had visited the premises of Mr. James Murray, Ballyhenry, a registered dairyman, stating that diphtheria existed among his customers. I, accompanied by Dr. Loughridge, inspected Mr. Murray's premises and cattle same day. No disease of any kind exists on Mr. Murray's premises, and I have never seen a better ordered dairy; both without and within it is as clean as hands can make it, and I have never seen it otherwise. Appended please find certificate from Dr. Loughridge, as to the health of everyone about the dairy. This report is a very serious matter for this dairyman, and I cannot well understand why the City Authorities, if they had any suspicion of the existence of disease, did not communicate with the Medical Officer of Health of this district."

"To the Chairman and Members of the Belfast Rural District Council, June 12th, 1911.

"I beg to report that to-day, at the request of and accompanied by Mr. Barry, V.S., I carefully examined the house and household of Mr. James Murray, Ballyhenry, Co. Down. I have pleasure in stating that the family and servants of Mr. Murray are absolutely free from disease of any kind, and that the interior of Mr. Murray's residence reflects the greatest credit on Mrs. Murray, as it represents to me the high-water mark of the most up-to-date notion of household hygiene.

"J. C. LOUGHRIDGE,

"Medical Officer of Health,

"Rural No. 4."

"Resolution of Belfast Rural District Council, dated 19th June, 1911.

"Resolved.—That a Committee, consisting of the Chairman, Messrs. Vint, Graham, Chisholm, Cowy, Henderson, McDowell, Houston, be appointed to confer with Mr. Harper, Solicitor, and take such steps as may be determined upon."

"Report of Committee which met on 19th June, 1911.

"Case of James Murray, Ballyhenry.

"Mr. Barry, Veterinary Inspector, was in attendance.

"The Committee, after giving all the circumstances of this case the most careful and patient consideration, and having learned that the officials of the Belfast Corporation are making the strictest investigations for the purpose of ascertaining whether or not disease exists in this place, were of opinion (although satisfied with the reports of your Medical Officer of Health and Veterinary Inspector) that the city officials should be given every facility for conducting their inquiries. The Committee ultimately decided not to take any action at present, but to await the result of the investigation being made by the city officials.

"(Signed), WM. A. BELL, Chairman."

"Resolved.—That the foregoing Report of the Committee be approved and adopted."

"25th June, 1911.

"Sir,—I have been requested by the Belfast Rural District Council to bring under your notice a report received by it from Mr. John McClure Barry, the Veterinary Surgeon to the District Council, of an alleged disease in the County Borough of Belfast, and alleged to be attributable to milk supplied from a dairy in the rural district within the County Borough mentioned.

"My Council and its officers are most desirous that no milk from the rural district should be supplied to purchasers within its district, or within any other district, likely to cause disease to any person. My Council, therefore, desires that in the event of any suspicious case arising, your officers co-operate with the officers of my Council to prevent such milk being supplied for consumption, at the earliest possible moment. In this way my Council is of opinion the costs of making applications for magistrate's orders would be avoided, as the dairy-keepers in the rural district do not in any way endeavour to prevent my Council's officers from making any inspections at all reasonable times, and your officers would, if it was the desire of your Council, be at liberty to accompany them.

"Yours truly,

"HUGH HARPER.

Robert Meyer, Esq."

"28th June, 1911.

"Sir,—Referring to the recent outbreak of diphtheria in the Ferriehill Park District of Belfast, I am directed by the Public Health Committee to inform the Belfast Rural District Council that Dr. Baile, Medical Superintendent Officer of Health, in the course of his investigations as to the cause of the outbreak, ascertained that the majority of the persons affected consumed milk supplied from the dairy of Mr. James Murray, Ballyhenry, Co. Down. He, the Medical Superintendent, accordingly proceeded to this dairy, and inspected the premises, which are situated in the Belfast Rural District. He was subsequently instructed by the Public Health Committee to take proceedings under Section 4 of the Infectious Diseases (Prevention) Act, 1890, and with this object he procured an order from a Justice of the Peace, having jurisdiction in the place where the dairy is situate, and, accompanied by the Veterinary Inspector, proceeded on the 17th inst. to inspect the dairy. On arrival there, however, he was refused admission by Mrs. Murray, notwithstanding that he produced the Justice's order, and warned her of the consequences of her refusal.

"Mr. Murray, the owner of the dairy, was then-upon required by the Public Health Committee to attend before them in the City Hall. Mr. Murray did so attend on Tuesday, 20th inst., and when asked why his wife obstructed the Committee's officer in the discharge of his legitimate duty, said that he had attended a meeting of the Belfast Rural District Council, who had had the matter under consideration, and from what he had there heard, and from the statements of the Rural District Council's officers, he understood that the Medical Superintendent Officer of Health from Belfast had no right to inspect the dairy, and that he should not be permitted to do so.

"I am to ask if the Medical Officer of Health, No. 4 Rural District Council, under date of the 15th inst., reported to his Council that, "accompanied by Mr. Barry, Veterinary Surgeon, he had carefully examined the house and household of Mr. James Murray, Ballyhenry, Co. Down, and had pleasure in stating that the family and servants of Mr. Murray were absolutely free from disease of any kind; if the Belfast Rural District Council are aware that Mr. Murray, having subsequently consented to allow Dr. Baile to examine the members of his family, and the employees in connection with his dairy, one of the former was found to be suffering from diphtheria; that in consequence it had become necessary for the Public Health Committee to require the removal of all the members of Mr. Murray's

family from the premises, to have the dwelling-house disinfected, and the dairy and type fire washed, and other stringent measures adopted in the interests of the health of the citizens of Belfast.

"I am also to ask if Mr. Murray's statement herein referred to correctly interprets the views of the Belfast Rural District Council, and if the District Council's officers advised Mr. or Mrs. Murray as stated.

"I am, Sir,

"Your obedient servant,

"B. MEYER,

"Town Clerk."

"CONCISE OFFICE,

"UPPER WICKBOURNE,

"BELFAST, 31st July, 1911."

"SIR,—Your letter of 28th ultimo, referring to the recent outbreak of diphtheria at Fortwilliam Park, and informing the Belfast Rural District Council of the steps taken by the Public Health Committee of the Belfast Corporation, regarding the premises of Mr. James Murray, dairyman, Ballyhenry, County Mayo, was duly laid before the Rural District Council at their last meeting.

"In reply I am directed to say that the Rural District Council, under date 12th ult., did receive a report from their Medical Officer as to the health of the household of Mr. Murray, in the terms quoted by you. It was therefore quite unexpected that the Medical Superintendent Officer of Health of Belfast should subsequently have found a member of Murray's family to be suffering from diphtheria.

"The Rural District Council, however, learn with gratification that the officers of the City of Belfast have taken careful measures to prevent the spread of the disease, and desire to take this opportunity of informing the Public Health Committee that they (the District Council) are at all times anxious to facilitate all qualified officers of the Public Health Committee in their efforts to trace disease when suspected in dairies situated in the rural district, as it is, indeed, in the interests of all concerned that this should be done.

"With regard to the statement of Mr. Murray, the Council instruct me to say that their views are as expressed above, and not as inaccurately interpreted by Mr. Murray from casual remarks made by individual members at the meeting referred to.

"The District Council officers have informed the Council that they did not advise Mr. or Mrs. Murray as stated.

"Yours truly,

"ROBERT G. JACKSON."

In face of this report and these letters, Mr. Chairman, I think it was hardly fair of Dr. Thomson to say that every obstacle was thrown in the way of the Belfast Public Health Committee by the Belfast Rural Council, in their efforts to discover whether an outbreak of disease was traceable to a certain milk supply. I think it was scandalous for him to say that.

9970. You understood that we have no responsibility for that. It only arose in consequence of representations made to the Commission?—I am exceedingly obliged to the Commission for giving us an opportunity of at least having a second of our objections to the remarks of Dr. Thomson.

9971. Is not this the case which was referred to by Dr. Thomson in which the diphtheria germs were discovered in a swab taken from the throat of a boy?—Yes; but that test was not applied by our medical officer.

9972. Was there any reason to suspect that this boy at any time suffered from an attack of diphtheria which had not been notified?—I understand that Dr. Loughridge was in attendance on the boy, but did not treat him for diphtheria; I am not certain of that.

9973. Of course, we have not arrived at this stage of our evidence without knowing that doctors occasionally differ in their diagnosis of disease, and if your medical officer differed from the view held by the medical officer of Belfast that would not be the first time that a difference of opinion had arisen between medical men; and it is my experience I have learned that diphtheria is one of the maladies in which a difference of opinion amongst medical men very often arises.

Mr. WILSON.—With regard to the general principle of the city authority—I am again the person that

has been used here—consumers' authority—inspecting in a given area—let it be in England to remove it from the region of local controversy—with regard to the principle that the consumers' authority should have some power to interfere with the production of such an article of food as milk, if they have reason to believe that the conditions under which it is produced are not satisfactory?—I am satisfied that the law has provided. When Dr. Baile came to me for a magistrate's order I signed it without the slightest reluctance. We are most anxious that you should come down, and I will be very pleased to sign an order whenever you call upon me for it, if you want to go into our district, but I do not know how you could prevent the overlapping between officers. The officers of the Belfast Corporation do not go into a district to find that everything is right.

9974. You suggest that they deliberately wish to make things worse than they are?—They have done so; I am perfectly sure of that.

9975. We had it as evidence from a very eminent witness the other day that in his opinion neither the control of the rural authority alone, nor the examination of the product by the city authority alone, was sufficient to protect the public health—that both authorities were needed to co-operate in the closest possible manner in order to protect the public health from danger?—They have got their backs up, and the officials of this Corporation want to get in by the back door.

9976. We have had it stated that the objection was not to the professional officer, but to the lay inspector going outside and supervising the work of the professional gentleman?—There is no objection to the professional officer.

9977. Would the removal of that condition—the sending out of a lay inspector—remove most of the objections?—I would not go so far as that. I do not think they are qualified to go into our district to inspect dairies and cattle.

9978. In England there are officers having this power?—Yes.

9979. And there is no friction?—None whatever.

9980. I mean the same power that Belfast is asking for?—I would like to see co-operation between one Council and another; but I think it is unjust to give this authority power without leave or licence to go into other districts and make an inspection or suggestions when our inspectors are qualified. I do not see the need of it.

9981. The CHAIRMAN.—There is another aspect of the question—supposing for a moment that your Council was particularly diligent in making provision for a proper carrying out of the provisions of this Order, and supposing they had—which happily they have not, because Mr. Barry is a most intelligent and efficient officer—an inefficient officer; do you not think that if that knowledge were present in the minds of the Belfast Public Health Authorities, it would make them very anxious about the condition of the dairies from which they receive some of their milk supply?—The last witness disclosed a state of things in Larne that the Local Government Board should not permit for two minutes.

9982. Mr. WILSON.—Were you present when evidence was given in respect of Antrim district?—No.

9983. We had it in evidence that they had no veterinary inspection of the cattle?—The Government should insist on that.

9984. In the meantime would you not sympathise with Belfast, which receives some of its milk supply from Antrim?—I would insist on the Government carrying out their duties. They should insist on every Local Authority carrying out the Order. It would be most unjust that the Belfast Authorities should have charge of Larne Rural District, that is, perhaps, thirty or forty square miles.

9985. There is no suggestion that they should manage outside districts, but that they should be in a position to be familiar with the condition of things in the country area from which they draw a portion of their milk supply?—They could only go and disclose the filthy places, but they cannot remedy them.

9986. I think it is the necessity for exposure that is the critical point?—I do not think that brings the case closer.

9987. Without exposure there is no likelihood of a cure?—The Local Government Board are too lax.

9988. You think that the Order should be uniformly administered in every district of the country?—Yes, I agree with that, and there should be supervision of the

cattle in every rural district. We have two of the smallest rural districts in Ireland, and yet we had not the slightest trouble in getting our Councils—the Castlereagh and Belfast Rural—so agree to appoint a veterinary inspector at once.

9695. Do you think that one inspector is sufficient for these two districts?—He is giving his whole time to the work.

9696. You are in the happy position of having an intelligent and efficient officer, but he has a great deal of ground to cover and a good deal of work to do, and Belfast Lough intervenes between his two districts, and you certainly are not underworking your officer?—We will give him assistance whenever he needs it.

9697. That is the proper spirit in which to approach public administration?—Yes.

9698. Sir STEWART WOODHOUSE.—Do you think some practical plan might be adopted by which these two districts might work more harmoniously. Would this plan not be valuable—that if the Corporation officials have reason to believe that an epidemic in their city originated in your district, they should communicate with you, and follow that up by sending them

medical inspectors to visit the dairy, meeting, if possible, your officials, so that they might have the quickest information as to whether there was anything likely to effect the public health of Belfast or not. They could leave, of course, to your District Council the right of punishment and following up matters locally, while they themselves would acquire an immediate knowledge, so that they might take steps to stop the epidemic?—The Public Health Authorities could get into communication with our officer inside at once, and he has authority from us to work harmoniously with them, and to give them every assistance to discover any outbreak of disease.

9699. Two doctors are better than one in many cases.—We have a veterinary surgeon, and a Dairy Inspector. Dr. Thomson said in his evidence to this Commission—“Outbreaks of disease had been undoubtedly traced to the milk supply from sources outside the city boundaries.” I am satisfied that all the sickness in the county is due to the contamination with the city people. That is where they get the disease. Thank you very much, Mr. Chairman, for giving me an opportunity of making this statement.

MR. JAMES GREGG, M.R.C.V.S., re-examined.

9699. THE CHAIRMAN.—I believe, Mr. Gregg, you want to give some further evidence?—Yes. There is a little evidence here which I am in a position to give, and which, unfortunately, has not come before you. By some chance the witnesses examined have come from the fertile parts of the Counties of Antrim and Down; the Hill districts have not been represented to my great extent. I know the rural districts of Ballyrannagh, Castlereagh, Drumahaire, Rathfriland, Hilltown, Bushbridge, and Drogheda—these districts comprise about the half of my native County of Down. The farms there are small, in some districts the average size would be 15 acres. One or two cows are mostly kept. There is hardly such a thing as winter dairying, so if a man's cow goes dry in January he gets no milk until April. The villagers, labourers, weavers, spinners and silkweavers get no fresh milk from November until May. Formerly they took their tea black, with home-made bread, and treacle on their porridge. Now they merely take porridge and white bread, instead of baked bread, but they occasionally mix cheap condensed milk with the tea. Many of the spinners contract consumption. Thirty years ago some of the labourers and heads kept an old Irish cow; she was as hardy as a goat—she had the power of producing a wonderful quantity of milk on coarse herbage, and could live over the winter on straw only, if nothing else could be procured—she never went sick. The present day cow will not live on the same food, and if attempts are made to treat her as a careless way she will die. Donegal County Committee are anxious to have the old Irish breed preserved, for the benefit of those mountain and hill dwellers. I had the opportunity of studying them last year, in company with Mr. William O'Neill and Mr. O'Doherty, Secretary of the County Committee of Donegal. There is still material, they don't look too good, but they would be better than goats, and as free from tuberculosis. The influence of the bull is very marked, whether in breeding up or breeding down for milk. Some ten years ago Mr. Watson, County Down, conducted experiments in winter dairying for the Department. His best cow gave 1,100 gallons in the twelve months, and was crossed to a premium shorthorn bull; the resulting heifer is now milking, and is rather disappointing. His second best gave 1,000 gallons, and was crossed to a cross-bred Connought bull. The heifer promises to be a splendid cow, as good as her dam. J. B. N., Stroudtown, has two heifers (3 years), newly calved, giving one gallon each per day. These were out of 700 gallon cross-bred cows, and from a shorthorn bull. R. M. B., Drumahaire, W. M., Niska, and A. A., Broughshane, have had similar or worse experience. The same people also have had experience of bulls improving the milk flow. The history of Denmark cows is a good object lesson on the same point. That is all I wish to say.

9695. The evidence put before us up to the present has been that, save in two or three small restricted areas, there is not any very general scarcity of milk. Does that represent the condition of things in Down and Antrim, and the districts surrounding Belfast?—It represents the condition in the districts around Belfast,

and the best districts of Antrim and Down, but in the hill districts of Antrim and Down milk is not so available.

9696. Even where people have money to buy it?—Yes. I think if the Department could either buy, or lend money to buy, say, a Kerry cow, or some of these Irish cows I have been speaking about, some good might be done, but unless something very cheap is the animal line, and something very hardy, could be procured, I would not advise going into it at all.

9697. Is the Donegal cow a distinct type?—You get them of two types. These are about the size of a Jersey, and they are nearly all great milkers and very hardy, and they can live on the heather.

9698. Have you any opinion as to the quality of the milk?—So far as I have heard, it is of a pretty fair average.

9699. Mr. WILSON.—We have had a letter from Mr. Bickerton Houston, which states—“I am of opinion that the improvement of a native breed, which is being found to suit the climate and pasture, is of the highest importance.”—Yes, that has been my opinion for years. If we had bred our own cattle, instead of importing stock, we would be better off today.

9700. THE CHAIRMAN.—Mr. Bickerton-Houston, D.L., has sent us a letter saying he is too dead to give evidence before the Commission, but kindly giving us his views. I will read his letter, which is as follows:—

“I have had about seventy milk cows for several years, and sell wholesale to milk retailers. I do not keep a herd, but buy on an average thirty-five cows yearly. For upward of seventy years, by far the greater part of the bulls used have been from South Island, which, when beef was the principal object, was, no doubt, the right choice. But now that so many districts in Ireland go in for milk, it appears to me that the Department should purchase bulls of the Bates strain, Red Lincoln, or still better (if not too dear) from the herds of Baron Rothschild, Lord Vernon, or other gentlemen who have turned their attention to produce the greatest and best quantity of milk, and afford farmers who desire their herds to improve in that direction, an opportunity of buying them. I need hardly say I do not wish any change made in districts where beef is still the main object. It also seems to me that it is doubtful whether the importation of Galloway bulls to Donegal and other parts of the West has been altogether a success. The first cross is doubtless a decided improvement in the size of the cattle. On the other side, they are bad milkers, and there is a great danger of ignorant farmers breeding from a good-looking bull of their own. The first cross is easily managed, but a second cross requires much more knowledge than they usually have.

“In those parts of Ireland, if the native cows were put to the best Kerry bulls that can be bought, I venture to think the heifer calves would turn out better milkers, and the males equally good for beef.”

“At Warwick (S.A.S. of England) Show some years ago, I saw a Kerry cow belonging to Mr. Martin Sutton, of Reading, get the first prize in

the milking competition; condition, to have calved three months, not to be milked till the second day. The result of the two milkings in one day was 51 pints, which is a most extraordinary quantity for an

animal of that size. I am of opinion that the improvement of a native breed which has been found to suit the climate and pasture is of the highest importance."

Mr. JOHN G. HAMM examined

9701. The CHAIRMAN.—You are Chief Assistant to the Town Clerk of Belfast?—Yes, sir, and I wish to place before you the following extracts from the Minutes of the Public Health Committee:—

"MEETING OF PUBLIC HEALTH COMMITTEE.

"DUPREUX.

"19th June, 1911.

"The Medical Superintendent Officer of Health reported, with reference to the outbreak of diphtheria among residents in the neighbourhood of Sonnerbrook, that on the 6th June he visited the dairy of Mr. James Murray, of Ballyhenry, Carrumore. He saw Mr. Murray, who informed him there was no sickness in his family or among his employees. Several additional cases of diphtheria in connection with the same milk supply having been notified between that date and the 16th inst., he again visited Mr. Murray's dairy on the latter date. He was met there by Mrs. Murray, who informed him that her husband was from home. He made an informal inspection of the premises and saw a boy, whom he had not seen on the occasion of his previous visit, excepting that a boy while milking was going on. He asked permission to examine the boy's throat. She declined to allow him to do this, and said he would examine no person there, and ordered him from the premises. He then obtained a Justice's Order for inspection, and on the 17th inst., accompanied by the City Veterinarian, he revisited the place. Mrs. Murray again met them and said her husband was from home. He produced the Justice's Order, and requested permission to inspect the premises. This she declined to permit, and said she had been so advised, and owing to her threatening attitude they were compelled to leave without making their inspection, and he subsequently reported the facts to the Chairman of the Committee. He also reported that Mr. Barry, the Veterinary Inspector for the Belfast Rural District, had telephoned to him, and strongly protested against him (the Medical Superintendent Officer of Health) inspecting Mr. Murray's dairy, as he (Mr. Barry) was the responsible officer in such a position. The Town Clerk reported that the Chairman had consulted him by telephone on Saturday afternoon, 17th inst., in the matter, and after communicating with the Medical Superintendent Officer of Health, he had served, by registered letter, a notice upon Mr. Murray, requiring him to appear before the Local Authority, i.e., this Committee, on Tuesday, the 20th inst., to show cause why an order should not be made requiring him not to supply any milk within the County Borough until such order has been withdrawn. The Town Clerk's action was approved of."

"The Medical Superintendent Officer of Health reported that he had just then been informed that Mr. Barry, the Veterinary Inspector for the Rural District, was in attendance. Mr. Barry was brought into the room. He stated that he was present unofficially, but he wished to assist the Committee of the issue of his Council and himself to co-operate with Belfast in ensuring a pure milk supply. He did not advise the Murphys to decline to allow Dr. Baile to inspect their dairy. He was informed of the outbreak of diphtheria in Sonnerbrook on the 16th inst., but having previously heard rumours of it, he, accompanied by Dr. Loughridge, the Medical Officer of Health for the district, made an inspection of Mr. Murray's dairy on the 18th inst. He (Mr. Barry) examined the cattle and dairy premises, and found no disease of any kind. Dr. Loughridge, in addition, made an inspection of Mr. Murray's house, family and servants, and his certificate was as follows:—

(Copy.)

"Report to Belfast Rural District Council on 16th June, 1911.

"WINDERMERE, 16th June, 1911.

"To Chairman and Members,
Belfast Rural District Council.
"I beg to report that to-day, at the request of, and accompanied by, Mr. Barry, V.S., I carefully

examined the house and household of Mr. James Murray, Ballyhenry, Carrumore. I have pleasure in stating that the family and servants of Mr. Murray are absolutely free from disease of any kind, and that the interior of Mr. Murray's residence reflects the greatest credit on Mrs. Murray, as it represents to me the high water-mark of the most up-to-date notions of household hygiene."

"(Signed), J. C. LOUGHRIDGE,
"Medical Officer of Health.

"Mr. Barry having retired, the Committee discussed the matter, and instructed the Medical Superintendent Officer of Health to visit the dairy premises this afternoon, accompanied by the City Veterinarian, and, if necessary, to obtain the assistance of the local Constabulary for the purpose of his inspection."

"MEETING OF PUBLIC HEALTH COMMITTEE.

"DUPREUX.

"20th June, 1911.

"The Medical Superintendent Officer of Health reported that at the conclusion of the business of the Committee yesterday he found Mr. Murray awaiting him in his office. He saw him in the presence of the Chairman (Councillor Dr. Thomson) and Councillor James Johnston. Mr. Murray declined to permit of his inspecting the dairy, and he (the Medical Superintendent Officer of Health) was instructed by the Chairman and Councillor Johnston not to again visit the place, but to issue summonses against Mr. Murray and his wife for obstruction. Mr. Murray appeared before the Committee in pursuance of the Town Clerk's notice. He stated he was present at a meeting of the Belfast Rural District Council on Friday, the 16th inst., and the idea conveyed to him by the meeting was that Dr. Baile was overstepping his duty. He was not at the dairy on the occasion of Dr. Baile's last two visits; it was his wife who refused to allow the inspection. He admitted he was wrongly advised, and was willing that Dr. Baile should make whatever inspections he may think necessary, as all he wanted was to have the matter cleared up. He gave a list of his family and servants, and the Medical Superintendent Officer of Health, with the City Veterinarian, then left with Mr. Murray to make an inspection of the dairy, cattle, premises, and household."

"MEETING OF PUBLIC HEALTH COMMITTEE.

21st June, 1911.

"The Medical Superintendent Officer of Health reported that, accompanied by the Veterinarian and Mr. Murray, he inspected the latter's dairy on the afternoon of the 20th inst., and examined the throats of Mr. Murray's family and employees, and took sixteen swabs therefrom, which he handed to Professor Symmers for examination. Fifteen of these proved negative, and in the remaining one diphtheria bacilli were found. This was from one of Mr. Murray's sons. A swab was also taken by the Veterinarian from a teat of one of Mr. Murray's cows, and also handed to Professor Symmers."

"He submitted Professor Symmers's certificate as follows:—

(Copy.)

"THE QUEEN'S UNIVERSITY OF BELFAST,
"PATHOLOGICAL DEPARTMENT.

"June 21st, 1911.

"DEAR SIR,—There are diphtheria bacilli present in the swab taken from James N. Murray. I have not found any such bacilli in the other sixteen swabs sent by you on June 20th.

"In the positive case the bacilli are not numerous.

"Yours faithfully,

"WM. ST. C. SYMMERS.

"Dr. H. W. Baile,
"Town Hall, Belfast."

He also headed in the following reports:—

"PUBLIC HEALTH DEPARTMENT,
" BELFAST, 21st June, 1911.

" To the Chairman and Members of the
Public Health Committee.

" GENTLEMEN,—I beg to inform you that on the 20th inst. I inspected the dairy of Mr. Murray, Carrumoney, and am of opinion that infectious disease is avoided from consumption of the milk supplied therefrom.

" I am, etc.,

" H. W. BAILIE,

" Medical Superintendent Officer
of Health."

" 20th June, 1911.

" To the Public Health Committee.

" GENTLEMEN,—This is to certify that, in my opinion, infectious disease, viz., diphtheria, which has broken out in the Portliff district of the city, is attributable to milk supplied from the dairy of Mr. James Murray, Ballyhenry, Carrumoney, and I base this opinion on the fact that diphtheria bacilli have been found to be present in the throat of one of Mr. Murray's children, as is certified by Professor Symmers, Bacteriologist, Queen's University.

" HUGH WM. BAILIE,

" Medical Superintendent Officer of
Health."

" Mr. James Murray, the owner of the dairy, attended, and promised to send his wife and family away for some time, and to allow the Medical Superintendent Officer of Health to disinfect the premises. He was served personally with notice under Section 4 of the Infectious Diseases Prevention Act, 1890, to appear before the Committee at 11 o'clock on Friday, the 23rd inst., to show cause why an order should not be made requiring him not to supply milk within the County Borough until such order has been withdrawn. And also with a notice under Section 43 of the Local Act of 1887, requiring him to furnish a complete list of the names and addresses of all his customers within the County Borough.

" Resolved—That the Committee be summoned to meet on Friday, the 23rd inst., at 11 o'clock, to meet Mr. Murray, in pursuance of the notice served upon him under the Infectious Diseases (Prevention) Act."

" Submitted draft letter to the Belfast Rural District Council, as to the attitude of that body and their officers, and the advice stated to have been given by them to Mr. Murray. The letter was approved of."

" MEETING OF PUBLIC HEALTH COMMITTEE.

" 23rd June, 1911.

" The Medical Superintendent Officer of Health reported that in accordance with the Committee's instructions he yesterday again visited Mr. Murray's premises, Ballyhenry, and disinfectant his house and dairy, and had the milchcows lamewashed, and that

Mr. Murray had sent his wife and family away to Bandedstown that morning. Mr. Murray attended in pursuance of notice, to show cause why an order should not be made requiring him not to supply any milk within the County Borough until such order had been withdrawn. He stated that he had sent his wife and family away to Bandedstown, and that his house and dairy had been disinfected by the Public Health officials, and the milchcows lamewashed. He was asked if the Committee deferred making the order, would he, for a week at least, have his cows milked in the fields, his milk supplied direct from the field to the customers, have his milchcows disinfected by Board of Guardians' Steam Disinfectors, and keep his milk cans in the open air. Mr. Murray undertook to do these things, and the Committee, being satisfied that if these precautions were adopted no risk of further infection from the milk would arise, deferred for the present making an order under the Infectious Diseases (Prevention) Act."

VOTES OF THANKS.

1904. Mr. James Gregg.—I have been asked, Mr. Chairman, by the witnesses present, to express to you their very great appreciation of the manner in which you have conducted this inquiry. It is the universal opinion of those who have got experience in this sort of work that they have never at any time met a chairman who has brought out the facts from the witnesses in such an able and courteous manner. They also wish me to express their thanks to the other members of the Commission and to the Secretary for the great courtesy and kindness they have shown to the witnesses who have been examined here.

Mr. Thomas English.—As one of the vendors of milk in Belfast, I would like to endorse the remarks made by Mr. Gregg, and to express our thanks to the Commission generally for the very valuable information they have elicited in the course of this inquiry; also to you, Mr. Chairman, for the practical and capable manner in which you have conducted the proceedings. I have been delighted with the questions that you have put to the witnesses, and for the very valuable views you have elicited; and I hope that the Commission will have practical results in procuring a larger quantity of milk.

Mr. W. E. Meeson.—As one of the farmers who appeared before you, and who has listened to a good deal of the evidence, I think the arrangements made have been admirable, and I do not think my time has been lost. I beg to join in the expression of thanks to the Chairman and members of the Commission.

Mr. W. R. Crosswell.—I have great pleasure, Mr. Chairman, in agreeing with what has been said with regard to yourself and the other members of the Commission. I never was so much pleased with a Chairman in all my life.

The CHAIRMAN.—I am extremely grateful for the kind expressions which have been used by the speakers in reference to the members of the Commission and myself, and I beg to return you my sincere thanks on their behalf and my own. We have come here for one object, and one object only, to elicit facts, and we have endeavored to accomplish that purpose. I am extremely grateful for the assistance we have received, and for the very clear and explicit manner in which the witnesses have expressed their views, and I am sure we shall all retain very pleasant recollections of our visit.

The Commission then adjourned to Dublin on the 28th February.

TWENTY-SECOND DAY.—WEDNESDAY, 28TH FEBRUARY, 1912.

The Commissioners met at No. 5, Upper Castle Yard, Dublin.

Present:—P. J. O'NEILL, Esq. (Chairman); LADY EVERARD; MISS MARGARET McNEILL; Sir STEWART WOODHOUSE, M.D.; GEORGE A. MOORHEAD, Esq., F.R.C.S.; ALBIO WILSON, Esq.; DERMOT O'BRIEN, Esq.; J. R. CAMPBELL, Esq., R.S.C.; Professor A. E. METTAM, R.S.C., M.R.C.V.S.

S. W. STRANGE, Esq., Secretary

Dr. W. ATKINSON WOOD, M.D., M.S. (Melb.), A.F.N. (London), examined.

9703. The CHAIRMAN.—I should like at the outset to express, on behalf of my colleagues and myself, our very deep gratitude to Dr. Wood for his kindness in attending. It seems such an unwarrantable intrusion on his leisure during his holidays to ask him to give evidence here, that we should be quite ashamed of ourselves for asking him under such circumstances to give evidence before us. We are very grateful, indeed, to him for attending.

Dr. Wood.—I thank you. I look on it rather as a privilege than otherwise being asked.

9704. The CHAIRMAN.—You are a medical doctor, I understand, and reside in the City of Melbourne?—Yes.

9705. And you have some experience of the difficulties that have confronted milk consumers in securing a supply of pure milk?—Yes.

9706. And these difficulties were so acute that an effort had to be made for the purpose of assisting the poor in obtaining a milk supply?—Yes.

9707. Would you be kind enough, Dr. Wood, to explain to the Commission the causes that led up to this effort being made, and the nature of the effort itself?—For many years past the medical profession, particularly those who largely attended children, realised that the death-rate, especially during the summer months, which with us in Australia are very hot, was very great, very much greater than was necessary; that the summer diarrhoea amongst children was a preventable disease, and it was that disease that produced the main deaths amongst the children under one year old. For many years past the doctors who had been interested in the subject had been trying to educate the public by means of lectures and otherwise, but with very poor results. We could not get the public to take the interest in the matter which we wished them to do, and to realise the fact that most of the cases of death amongst infants during the summer months were due to the milk. Lady Talbot attended one of our lectures, and she took a very practical interest in the matter, and I think that was really the turning point in the whole question. When someone in authority takes the matter up, it seems then that the public who can help us begin to take an interest in the matter too. She called a meeting at the Government House, to which she invited, not only the medical men interested in the matter, but also the members of large firms—men who had the handling of large sums of money for charitable purposes. The whole matter was explained to these gentlemen, and they promised us a certain amount of money, which was sufficient to make a start, on a proposal that we thought was necessary. We also had at that meeting the present Premier, Sir Thomas Bland, and he viewed the matter with a certain amount of interest, but I am afraid nothing very much came of it at first. With the money we had at that time we began to look about for a suitable supply of milk for infants. We were only going to start on a very small scale, and we thought that not only would our institute, which we called the Lady Talbot Milk Institute, not only would it be for the supply of pure milk, of all sorts for the children in the summer months, but that it would be a means of education for the mothers of the children and for the public, and for the dairymen. So that the first thing we wanted to do was to look about for a suitable firm that would supply milk up to the rigorous standard we had down at the start, and as the first instance we visited many farms about Melbourne to see if there was any one of them that would come up to our standard. There was no firm that we could say was in a condition to produce the pure raw milk supply for the children, so that we were literally

pushed back to pasteurised milk for the first year, and we started in a small way to supply infants with pasteurised milk. It was not altogether satisfactory. It was an improvement on the old way, of course. The pasteurised milk was delivered in bottles, and it was delivered cold, and so on; but the next year we determined to supply healthy raw milk. The first year we thought we would like to do it, but we did not like to take the risk of it. As a matter of fact, in a new thing of this sort critical eyes are on you in the first year, and ready to draw attention to the weak points, especially as we knew we had many antagonists amongst the dairymen. After the first year we made up our minds to risk it and get a really good firm, because we had an excellent firm in our minds in the second year.

9708. Mr. WILSON.—How long ago was that?—Three or four years ago. I have in my hand the third Annual Report of the Institute, presented on the 13th September, 1911, for the year ending the 30th June, 1911, and the statement of receipts and expenditure. The farm we had in our mind's eye belonged to a Mr. Hope, Caulfield, and was about six miles from Melbourne, and the owner was very much interested in a milking machine, so he had his own fish to try in recommending us. He had about twenty acres of land on which he ran his cows, and he fed them on the premises. He had a large silo there, too. His milk sheds were quite separate from his feeding sheds, they were all very well laid down with glazed bricks, very well drained, and his premises were so they should be in every way; and the fact that he had his feeding sheds quite separate from the milking sheds was a great point, because you do not get the dust of the feed in the milk. We were very careful with the attendants, who were very cleanly. They were licensed by a Government Supervisor whom the Government had appointed to be in constant attendance at every milking. He gave the employees lectures about the clean handling of milk, and also saw that they were clean, starched, covered, that their hands were thoroughly clean and washed, and that the cows were thoroughly groomed twice a day before milking, that all the rubbish was swept away, no dung allowed to lie about, and in short, all the cleanly surroundings that were necessary for a milk shed. I will go back to the milking machine after a time. Of course, the sides of the cows were thoroughly washed in clean water before each milking. The milking machine is used. It was an L. K. G. machine, and we found that it acted very well. We made comparisons between the results of machine-milking and hand-milking afterwards, and we could not see that there was very much difference between machine-milking and the expert hand-milking. It was altogether a little in favour of the milking machine. Well, after the sides were washed, the cows thoroughly groomed, and so on, there were three or four quarts taken from each test of the udder in order to get rid of any germs in the teats themselves before the milk was used. We find that the greatest bacterial content of the milk is in the first two or three quarts—that clears the way. The machine was employed, and the milking was done into covered cans. All portions of the machine were thoroughly sterilised for each milking. The cans were taken back immediately to a fly-proof room where the milk was weighed, it was then poured into a centrifugal strainer round which the milk was turned, and then it was passed through a sort of small gutter into a refrigerating room. The milk was kept cold by a large quantity of ice, brine, and so on. It then passed over the ordinary cooler, with cold water

running through the taps. Then it was bottled in the cooling-rooms by assistants clad in sterilised overalls. It was heated by means of a particular heater that we had. We tried a great many fasteners, but we came to use one with a rubber washer and turned down top. The milk was afterwards put into corks and packed in ice, and then, four hours after, it was delivered to the houses—at all events, it was delivered in the special delivery carts within four hours, and all the time the temperature was kept below 40 degrees Fahrenheit. The delivery carts delivered the bottles of milk from door to door at the houses of the people who wanted the milk. The milk was delivered in these carts packed in ice, and the householder was supplied with a small ice-chest, containing sufficient ice to keep the milk cool for twenty-four hours. The expense of the ice was a penny a day, and the milk was always kept below 40 degrees Fahrenheit, until the child took it. Then we had a system of nurses who went round and visited each child that was taking the milk, at least once a week, getting the weekly weight of the child, and keeping records as to how it got on; and if any children were ill the would sometimes visit them as often as once a day. There the education came in, because the nurse was not only to see that the milk was used, but to instruct the mothers in the care and cleanliness of children, and in general cleanliness; and that we found that the nurse, who was a very sensible, sensible woman, was the means of disseminating general education amongst the women. We have now the milk to the baby's mouth. With regard to the results, the nurse's reports were always most excellent. The medical men's reports were all that could be desired, and as far as one could see from what the mothers said afterwards—it was a very good test. I think—the mothers were bitterly disappointed when, during the winter months, we stopped the supply. We did not think it necessary to carry it on during the winter months. Our funds are limited. The mothers in many cases were very bitterly disappointed through the stopping of the milk during the winter months. Now, we find that with mothers of the poorer class the education is beginning to be disseminated, and we feel that we are strongly on our feet, and the mothers are being educated to a very great extent. I may say that the milk is daily inspected, not only by the Government inspector in the way of production—he is always on the spot to see that the milking is carried out in a clean way, and also the handling of the milk—but we have a bacteriologist at the University. Dr. Bell has four daily samples sent to him for examination; the expert at the Veterinary College has also four samples sent to him daily, and then we have our biological expert at the University, Dr. Bethers, who examines it for solids and fatty contents, and that sort of thing; so we have three experts examining the milk every day.

9709. The CHAIRMAN.—What standard have you fixed with regard to the fats and solids?—We take the Government standard, which fixes the percentage of fat at 3.5. I forget the percentage of the solids. The cows are Ayrshire cows, and, as a rule, we come well above the 3.5 per cent. standard of fat; but I may let you into a little secret here which did not come out, and that is that occasionally our fatty content was below 3.5. Sometimes we go up to 4.5 and 4.8 per cent., and we could not understand how on one occasion the milk was below 3.5; but on investigation we found it was due to the time the cow was milked.

9710. Mr. WILSON.—We have had evidence here of the same thing—where cows did not come up to the 3 per cent. standard of fat—the legal standard in this country?—There is no doubt that the time a cow is milked does affect the fatty content of the milk itself.

9711. Mr. CAMERON.—You were going to speak of the bacterial content of the milk?—Yes. The content, of course, varies as it must do, but during the last summer I think our average content was about 5,000 per c.c. We have got it down to even as low as 250 per c.c., but 5,000 is a particularly low content. Sometimes it is up to 13,000 or 14,000, but I think we may say at an average it is about 5,000 or 6,000. One can say that that is a very pure milk.

9712. Was there any information kept as regards the kinds of bacteria, or was it the ordinary lactic acids?—No, there were several kinds—alcali, which one need not think about very much, lactic acid bacilli, and the lipolytic one, and I may say that, as a rule, they were of the sort that did not include faecal contamination.

9713. Dr. MOORE.—They were not pathogenic?—We found in no case pathogenic bacteria. I forgot to state that every cow was tested for tuberculosis before being allowed into the herd. We milked about ninety-eight cows on an average, and out of that number five were originally condemned on account of reacting to the tuberculin test. Every cow which is brought into the herd is tested for tuberculosis, and, of course, she is not allowed in if there is any reaction, and at the end of the year the cows are re-tested for tuberculosis, so that we are pretty safe in keeping the tuberculin bacilli out of the milk. There were one or two cows that were put out of the herd for having mastitis, and at one period we were very much exercised in our minds as to the high bacterial content, and we could not quite make it out, so we determined to examine each cow separately for its bacterial content. Amongst these ninety-eight cows we found two or three that are known as "cocal" cows, that is, they are apparently healthy, their udders and teats are apparently healthy, and yet they are giving a milk that is highly charged with cocci, and these are recognised now as "cocal" cows. You can only find out that they are dangerous by examining each cow for its milk content. When these cows were weaned out their bacterial content went down. Thus, I believe, are pathogenic.

9714. Prof. MURRAY.—What kind of cocci did you find?—I think they were staphylococci.

9715. The CHAIRMAN.—Did you discriminate between the people to whom the milk was given, or was it for the very poor only?—Yes, and that is where we had trouble. The Institute was started as a philanthropic institution; we delivered the milk to the poor people, and then the better class people began to cry out and say, "the poor people are getting this milk; we have babies also and we want the milk too." We said, if there is anything over, if our supply is greater than our demand, you can have what is left, and we began to supply them at cost price, which was 5.3d. per pint.

9716. Miss McNEIL.—How would that price work out with money in this country?—I will ask our Secretary to work that out.

9717. Is the standard of living higher in Australia?—It is higher. It is, I think, midway, between that of this country and of America.

9718. Fivepence a pint there would come up to expense: halfpenny with us?—No, less. Our scale of living is higher than in England.

9719. Mr. CAMERON.—What is the average price of commercial milk in Melbourne?—About threepence a gallon.

9720. The CHAIRMAN.—Was the milk in your Institute distributed free, or was it distributed at a reduced price?—It was distributed at a reduced price. We charged a penny, twopenny, or threepenny a pint to the poor people who could pay, according to their circumstances. The nurse ascertained what they were able to pay, and the poor people who could not pay anything were supplied free. We always had a certain number who got the milk for nothing.

9721. Mr. WILSON.—Would this represent the situation as regards the price—you have risen the market-price from threepence to fivepence?—I should say the market-price is about twopenny. The cost of our milk is a little bit more than double.

9722. So that to get a comparison here we should take our milk price and double it?—Yes.

9723. The CHAIRMAN.—Have you now taken over the farm?—No; a man named Hope has a farm and he supplies us with milk at a fixed rate.

9724. Under the conditions prescribed by you?—Yes, under our standard conditions.

9725. And you give him a fixed price for a certain quantity of milk?—Yes.

9726. Has he increased and developed his herd in order to meet your requirements?—Yes. He has been most generous in all things he has done in regard to that, but at the same time, of course, he is advertising his own milking machine.

9727. What I wanted to get at is this, the arrangement between you and the proprietor of the farm is a purely commercial arrangement?—Yes.

9728. He has in no way assisted the work you are carrying out by giving you the milk under cost price?—No, it is a purely commercial arrangement.

9730. And all the cows are Ayrshires?—Yes.

9731. Are they pure bred?—Yes; fairly good.

9732. Mr. WILSON.—What does your Association pay the farmer for the milk?—If you would not mind writing that question down, I can give you the figures later on. If I cannot supply them now I can supply them at some other time. I did not expect to give evidence, and I do not want to give figures unless I am fairly sure of them.

9733. Mr. CHAIRMAN.—Your Institute is not worked on a commercial basis, because the people are not able to pay the full price of freestone a pint for the milk.

The CHAIRMAN.—The production is carried out on a commercial basis.

Prof. MERRAN.—The distribution is philanthropic.

Mr. CHAIRMAN.—It is really an experiment to show the effect of pure milk upon the death-rate of children?—Yes.

9734. It is not a commercial experiment?—No.

9735. It is not a commercial undertaking, and you do not intend to make it a commercial undertaking?—No. We find that we are educating the people; that the better class of people are giving any price for milk that they can depend on.

9736. The CHAIRMAN.—The better class of people are prepared to pay an enhanced price for an article that comes up to your standard?—Yes.

9737. That is the result of your educational experiment?—Yes, and we are anxious for other dairies to come in and sell their milk as "Talbot" milk, if they come up to our standard.

9738. Have any offers been made by dairies?—Yes, but no one has come up to our standard conditions.

9739. Have you an appointed authority to consider whether these dairies come up to the standard?—Yes. The patronesses of the Institute are Lady Feller and Lady Talbot. The trustees are—Mr. Selby Panton and Dr. Barrett; and the management consists of—Dr. Wood (my brother), Dr. Dunbar Hooper, and Mr. Hauger. We have on it the Minister for Agriculture. He does not attend. We have Dr. Agnew, Dr. Boyd, Dr. Bell (Director of the Bacteriological Laboratory, University). We have the Director of Agriculture, the Chairman of the Board of Health, the Director of the Federal Quarantine Department, Dr. Roberts (Lecturer in Bio-Chemistry, University), Dr. Gilchrist (Professor of Veterinary Pathology, University). He is really a man of world-wide fame; and then we have certain Councils represented—Melbourne City Council, Collingwood City Council, and Prahran City Council. So you see that no Government or anyone else could elect a body that would be more representative than these people are.

9740. The CHAIRMAN.—Have you received any subscription either from the State or from any corporate body?—Yes. There are five or six Councils, and they give us from £50 to £100 each. We received subsidies from the Municipal Councils of Melbourne, Prahran, Collingwood, Fitzroy, and South Melbourne.

9741. Were those contributions from public funds?—Yes. The amounts we have received so far from private individuals do not realise over £30 altogether. I am not counting the original amounts that the Trusts gave. Last year we got a grant of £1,000 towards the funds of the Institute from the Government in addition to the Municipal grants.

9742. Mr. WILSON.—That is the State Government?—Yes.

9743. Not the Federal Government?—No, the Government of Victoria.

9744. The CHAIRMAN.—What are the Councils represented on your Board of Management—are they the City Councils, or Councils that represent the suburbs of the City of Melbourne?—They represent the City Council, and some of the Councils in the suburbs. Each suburb has a Municipal Council, and they have their local Board of Health and their Health Officers; so it is part of their duty to look after the health of the children in their districts, and some of them have subscribed towards the Institute more liberally than others. Two of them give £100 each every year.

9745. Do they impose any condition with the contributions—do they demand that a certain quantity of milk shall be distributed in their area?—That question has not come up, because we have always been able to supply any applications that we have had for milk. These applications come in from the nurses or medical men. If a medical man has a case that he thinks ought to have the Talbot milk he orders it, and it is

supplied. If the better class people apply to our secretary he will tell them who is the local distributor in their district.

9746. Can you tell us what arrangements have been made for medical attendance on the very poor, in order that we might ascertain if there is any analogy between the conditions in Melbourne and here?—First of all, there are the hospitals. Before persons are admitted as patients they have to tell the lady in charge at the door how much their husband earns, how many children in the family, and all these little things that go to point out what their financial condition is; and if it is found that they are in a position that they cannot afford to pay for a medical man privately, they are allowed to become patients, either out or indoor; but there is a Government provision which does not do very much good, I think, with regard to admitting patients to the hospital. As a matter of fact, there are a great many people who get into hospitals as patients who ought to be paying for outside medical assistance. The greatest number of people belong to clubs, where they have their club doctors. They pay so much a year, perhaps from 15/- to 24/-, for looking after the husbands and wives and children, up to a certain age, of the members.

9747. How are the members of the profession recompensed in the hospitals—are they paid by the State or by the local authority?—We only hope to be recompensed hereafter.

Dr. MCGEEHAN.—We will try to keep out of the reward as long as we can.

9748. The CHAIRMAN.—Have you come to the conclusion that if milk can be supplied to infants free from disease germs you would prefer that than having it pasteurised?—Yes, certainly.

9749. Do you think that some of the food properties of the milk are injured by the process of pasteurisation?—Yes, that is our belief, and I think there are other points about it too. First of all, I don't think it is as good a food as pure raw milk, and the pasteurisation, I think, tends to kill the lactic acid bacilli. Pasteurisation, again, if there are any spores in the milk, tends to cultivate them. It does not kill them, it heats up the spore, and next day that spore is turned into a great many hundreds of thousands of bacilli. That is what pasteurisation tends to do. Then, of course, there are other points—it is a question as to what sort of pasteurisation you refer to. There are two methods of pasteurisation—the flash and the holder. The ordinary commercial method often refers to the flash process, which is heating the milk up to 180 degrees for about five minutes. That does not get rid of the burnt taste for one thing, and it is not as reliable in many ways as the other method.

9750. Is the Institute carrying on its work winter and summer?—No, we carry it on only in the summer. We have not enough money, and we do not think it necessary to carry it on in the winter. We seldom have many cases of gastro-enteritis in the winter.

9751. Is the pasteurisation of milk at all general in the ordinary supply to the city?—There is one company that supplies pasteurised milk, and it was that company which objected to our carrying on the Institute with Government help. They objected very strongly to this, and we had a great tussle with them, but eventually we came out all right. That was the company that originally did our pasteurising at our first year. Then when we thought that we could go on and do better with the pure milk, our relations with the company became strained and they did their best to put us down.

9752. Miss McNEILL.—How did they pasteurise for you?—They had a large tank in which they put the milk. They pasteurised in bulk, and they had a large tank, which was supposed to hold the milk for twenty minutes at a temperature of 145 degrees or 150 degrees.

9753. The pasteurising was not done in small quantities?—No; it was done in bulk.

9754. I think that has been largely discounted as a method of pasteurisation?—Yes.

9755. I don't think anyone is very keen on seeing milk pasteurised in bulk?—No.

9756. And then put into vessels for home consumption afterwards?—You often get it contaminated in the cooling process afterwards.

9757. Without at all questioning the advantages of raw milk, don't you think a good deal of the objection

to pasteurised milk has been due to the fact that it has been pasteurised in bulk, and afterwards people, perhaps, are not too careful, and that it is in that way that some of the trouble has arisen?—I think one of the great drawbacks is that pasteurisation interferes with the education of the farmer. If the milk is being pasteurised, what is the use of all this care on our part, they say. What I would suggest is, first of all, that you go round and get the solid facts of the conditions of the dairy that supplies the milk, the condition of the sheds and of the cattle; then I would suggest that you get an active man to take lantern slides, and give a series of lectures, to point out to the people all the places where the milk gets contaminated, and teach them how to produce it in a clean condition and to take care of it. It would be well also to go in one of your dairy premises and give instruction, because I am sure nothing can be done until education has begun, and when the education commences to take root and to grow, you will be in a position to better your milk supply. You will create a demand for a purer milk.

9728. In the meantime, you do not see any very serious objection in supplying pasteurised milk for babies until you can guarantee the raw milk?—It is the only way out for dirty milk.

9729. Even for a milk that is not dirty, but in the case of milk about which you have a doubt?—That is rather the position we were in the first year we started our Institute. We did not like to risk using raw milk, but we have a better condition of things now.

9730. Although you think that condition would not come up to your present standard, there are conditions supposed to be fairly good, and which may not produce any great trouble for grown people, but unsafe with regard to infants?—Yes.

9731. And one in that case would be driven to pasteurise the milk rather than take the risk?—Yes.

9732. I would like to know whether in your first year, when you pasteurised the milk, did you find any very strong evidence of harmful results?—Yes, with regard to several babies during that summer we were flooded with complaints about the milk—that it had dirt in it, or enormous bacterial content, or that it would go smelly.

9733. That was milk pasteurised in bulk, and it was dirty it would be always dirty?—Yes.

9734. You have milk that you have described as "cooal" milk?—Yes.

9735. If these cows are not separated from the others in the herd there is a risk to the balance?—Yes.

9736. And in that case pasteurisation would be useful?—Quite so; it would.

9737. Still, at the same time, the raw milk would be infinitely better if it could be got clean?—Yes.

9738. Prof. MINTON.—Do you think that the ordinary pasteurisation would kill the cooal in the milk?—It kills all the pathogenic bacteria when it is done scientifically, but commercial pasteurisation is not always done scientifically.

9739. Mr. WILSON.—Carelessness creeps into the routine of commercial pasteurisation?—Yes, often. We found it necessary to have a Government Inspector present at every milking. If he was not there the men would not carry out the things properly. You could not trust them.

9740. Miss McNEILL.—Even though they were particularly good men?—Yes. Sometimes even a supervisor should be watched.

9741. The CHAIRMAN.—Human nature is pretty much the same whether side of the equator it is. Am you hopeful that the interest that has been aroused in supplying pure milk to your city is likely to stimulate the public authorities to take up this question as a matter of vital importance to the public health?—On that point I would like to quote the following extract from "The Age" of the 7th October, 1911:—

"In the circular issued to municipal councils, inviting them to attend a conference on the 23rd October, regarding the milk supply, the Acting Minister of Health states that he will be prepared, on behalf of the State Government, to submit a draft scheme as the basis of the debate. This scheme will include a proposal to establish municipal milk depots for the supply of milk for infants, the

efficient inspection of dairy herds and dairies, and the providing of a nurse or nurse to assist mothers in the care of infants. Dr. Cameron will be asked to represent the Agricultural Department, and Dr. Johnson the Public Health Department. Out of every 100 children born in Victoria during the five years, 1905-1909, the smallest odds, 8-12 died before reaching the age of one year, or against 11-11 for the ten years ending 1909, and 7-13 for 1908. During the quarter ended 31st March, 1911, there were 671 deaths of children under one year of age, as compared with an average of 847 for the same months in the period 1906-1909. The reduction in all States in 1909 was equivalent to a saving of 4,331 infant lives, of which 1,267 were in Victoria. The principal unit in the causation of the high infantile mortality is undoubtedly a faulty milk supply. The question of a pure (raw) milk supply or a purified (pasteurised) supply, or both, and control or supply by central or by local bodies, will be considered by the conference."

9742. That would seem to indicate that the public conscience has been aroused?—Yes, and since our Premier, Mr. John Murray, went to Copenhagen and saw the milk there, he has become very much interested in the question. Before that he was apathetic, in fact more than apathetic. In addition to that, the fact that the Councils have become imbued with the idea that good milk is necessary, and that they are contributing to the funds of the Institute, show that they are alive to the situation, and I think the ball has begun to roll.

9743. Is there a central municipal authority in Melbourne representing the city proper?—Yes; they have taken up the matter only quite lately. They were the last to come in.

9744. Now you have practically all the local authorities sympathetic, if not contributing?—Not quite all. The health officer of one place shirks to his pasteurised milk, and there is the company I have already spoken of that did our pasteurising the first year. They and ourselves had a very hot argument.

9745. There is nothing very unusual in that. Any really drastic reforms always excite a certain amount of hostility, particularly on the part of people who are affected by the proposed change, or for a variety of other reasons?—Yes.

9746. Lady EVANS.—You stated that it only cost a penny a day for ice?—Yes.

9747. What quantity of milk would that be sufficient to keep cool?—It would keep two or three pints practically below fifty degrees for twenty-four hours. The milk that was sent up to the laboratory, and was kept under these conditions, remained sweet for forty-eight hours after milking.

9748. You spoke about two processes of pasteurisation—the flash and the holder process?—Yes.

9749. What is the difference between the two?—In the holder process the temperature is kept up for twenty minutes or half an hour; they hold it practically at a temperature of 145 to 150 degrees from twenty minutes to half an hour. In the flash process the milk is heated to a higher temperature, but only kept there for about five minutes.

9750. Have you much tuberculosis in Australia?—I think our experience would be about the average.

9751. Do you find the children ever suffering from tuberculosis?—A great deal. We have a great deal of tuberculosis amongst our children—hip disease and spine disease, and minor forms of enlarged glands.

9752. Prof. MINTON.—Is it hereditary or borne in origin?—You have asked me a very difficult question.

9753. Dr. MOORMAN.—In the case of rosters among your dairy herds, what do you do?—In our particular herd we throw them out; we won't have anything to do with a cow that roasts.

9754. What becomes of her?—Probably she goes into another herd.

9755. She is shored on to the next man?—Yes. What they do in America with cows that roast is, they get the farmers to isolate them. They keep them in separate paddocks, and they drink from running water. They don't allow the cows even to get their noses together on the paddocks. They allow the milk to be sold if pasteurised, but not otherwise. If the cows get to a further stage they are allowed to go to the abattoir and the inspectors decide about the meat.

9785. They make an effort to cure them in the first instance?—They cure by prevention only. They don't let any animal that reaches go across the borders of a State; and they are making it very difficult for farmers to keep tuberculosis cows at all; and of an animal reaching they have to keep it separate from the others.

9787. They have compulsory power to solve a clinically tuberculosis beast?—I don't think so. If you were to put out every cow that reacted there would be a milk famine.

9788. I take it that there must be a great deal of tubercle bacilli getting into the milk supply?—Not necessarily. Many of the animals that react, say, 40 per cent., do contaminate the source, and so it is an infective agent to the other cows in the herd, because they pass tubercle bacilli in their faeces.

9789. It is not at all necessary that the animals should have a tuberculous udder in order to be highly dangerous?—No.

9790. Most of the danger comes from the faeces of the cow?—Very often.

9791. You say that the cost of milk per pint to your Institute is 5.34.7.—Yes.

9792. You can get a demand amongst the better classes?—Yes, they are only too pleased to get it.

9793. And that is nearly double the ordinary price of milk?—It is double.

9794. Why is the cost so high?—I can give you the details of the cost. The following table shows the amount which each pint of milk delivered costs the Institute, and the various headings under which such cost per pint occurred:—

Gross expenditure	£ 717 2 0
Not (after deducting proceeds, sale of milk)	686 0 0
Amount of milk distributed	24,432 pints

Item of Expenditure.	Gross Cost.	Net Cost.	Net Cost per Pint.
	£ s. d.	£ s. d.	Pence
Purchase of Milk	369 9 11	361 10 4	1 979
Delivery of Milk	99 13 7	74 10 9	3 32
Purchase and Delivery of Ice	56 6 4	42 2 5	4 15
Nursing Expenditure	121 13 5	90 19 7	8 60
Secretary's Salary	90 0 0	71 16 0	7 65
Collector's Salary	43 10 0	38 10 4	3 10
Office Expenses	30 9 6	25 15 9	2 55
Totals	£ 717 2 0	£ 536 5 0	5 34 7

9795. Lady EVERARD.—This is all for six months?—Yes. It all reckons out at, roughly, £596, and the net cost per pint is 5.34.7.

9796. The CHAIRMAN.—That price covers all the expenses, and the cost of the nurse giving instruction?—Yes.

9797. Miss McNICHA.—The nurses teach the mothers how to modify the milk?—Yes. The nurse gets £30 a year.

9798. The CHAIRMAN.—The figure that you give, 5.34.7 per pint, covers all the expenses, including the ice and the coders for the milk?—Yes, and the officers' and collectors' expenses. These are all included in the 5.34.7.

9799. Mr. WILSON.—You do not reckon the commercial profit and the expert supervision?—That is not the Government's business. The supervisor is always on the farm. Mr. Hope does not pay for that supervision, nor do we. The State pays for it.

9800. Of course, the Committee is charged with nothing by it?—No. We get all the kids and none of the intelligence.

9801. If we were to get the same thing carried out in this country on a commercial basis it would double or treble the cost of commercial milk?—Yes.

9802. Is the bacterial test voluntary?—We give Dr. Ball £50 Dr. Gilchrist is a volunteer. He is one of our best. We gave Dr. Ball £50 one year, but all the tests by Dr. Gilchrist are done for nothing.

9803. Prof. MERRIAM.—Does Dr. Bothers charge?—No.

9804. Dr. MOONSHAN.—What is the average yield of a cow in your herd?—That I cannot tell you.

9805. Do you apply the Widal test to any of the attendants of the cows, or do you approve of it?—No; we have not done that at all.

9806. Lady EVERARD.—Have you ever had outbreaks of typhoid which you traced to carriers?—Yes, in the general milk supply. We had a very bad one last year. Every case we had came from one dairy, and there was a typhoid carrier.

9807. What became of him?—He was shut up by the Government.

9808. Prof. MERRIAM.—How the Government still got the carrier?—They put him down in the small-pox quarantine station, but I do not know what became of him since.

9809. Besides no one can say when he becomes absolutely fit as a carrier?—No. He is better there than in the milking dairy.

9810. Dr. MOONSHAN.—You have a Bureau of Health?—Yes.

9811. And a Minister of Health?—Yes, he is Minister of Health and of Agriculture.

9812. Mr. WILSON.—What is the nature of the ordinary milk supply to Melbourne?—There is this large pasteurising company that I have already referred to, and that draws the supply from farms which are not up to our standard.

9813. Does the company get a supply from different farms?—Yes, ten or twelve different places.

9814. Is there any provision made for the handling of the milk at the railway stations in a proper manner?—No, that is a thing we are asking for. It is a great drawback. We want refrigerating cars badly, and in the summer time we see these cars put out on the platform.

9815. Have you got any equivalent to our Dairies Order, which insists on sanitary conditions in the byre?—That is being done very excellently by Dr. Cameron and his Agricultural Department, and the education is being carried on gradually. There is no doubt there are considerable improvements going on in our general milk supply, owing to what the Dairy Department is doing. They are doing a great deal, and all these things must be done gradually. The inspectors go round; they are fine men and delightful boaters. I was through Washington a little while ago and got a number of pamphlets that have been issued by the Bureau of Animal Industry. Perhaps they would be of use to the Commission. If application was made to the Bureau I am sure copies would be supplied.

9816. The CHAIRMAN.—I will ask the Secretary to take a list of these publications in order to make application for them?—If he writes they will send them back by return.

9817. They are quite up to date?—Yes.

9818. Mr. WILSON.—You give a considerable quantity of this milk to people in cases of poverty?—Yes.

9819. Of course, you have in Melbourne nothing like the slum quarters of our cities?—There is nothing comparable to what is in this country.

9820. Is there a shortage in the milk supply?—No.

9821. Can you give us an estimate of what quantity of milk a labouring man's family would buy?—He would buy what he wanted.

9822. Does his wife buy it as a matter of fact?—I would not like to give you an estimate, but if they wanted to buy it they could buy it. There is no shortage of money or of milk.

9823. Has your enterprise had any noticeable effect yet—have you been able to make any effect on the commercial dairies about you?—In this way, that there have been many of them which have written in saying that they intend to come up to our standard conditions. We visited many farms, and they do make improvements, and I think that in time there will be greater improvement.

9824. Have you noticed any effect on the price locally for milk—have the dairymen improved their milk and raised their price?—The pasteurising company, I think, charges a little more for milk in bottles, owing to the breakages and the sterilising.

9825. Do you contemplate developing your scheme into what one would call a Government Department?

or Municipal dairy?—We do think that the municipality ought to take the thing in hand and carry it out. We do not see why we should be condemned to carry on the business part of it always. We think that when we have educated the people, the Municipality or the Government should carry it on under proper supervision, and we hope that they will do that.

1930. That is the plan of campaign that you set before yourself—that if you proved the possibility of running it on certain lines, the State or Municipality should take it over?—Yes. We think either the State or the Municipality should do so.

1931. Have you fixed any standard of cleanliness regarding the bacterial bacteria?—We are satisfied with what we get now.

1932. You do not regulate bacterial contamination by a definite standard?—No, we go more by the general bacterial content, and if it is above the normal we point it out to the inspector at once. In one or two cases we had, perhaps, trouble in that way. Once the centrifugal machine for filtering the milk was not acting properly, and we knew from the bacterial return that there was something wrong, and we had to remedy it.

1933. Dr. MOONMAN.—5,000 c.c. is your standard?—We have no standard. I think it would be pretty severe if you fixed 5,000.

1934. It would be exceptionally low?—Yes. Lately our average has been down to between 6,000 and 10,000 per c.c., and sometimes as low as 300.

1935. If it goes beyond 10,000 are you then apprehensive?—Yes, quite so.

1936. Lady EVERARD.—I see that in the United States "sterilised milk" must contain under 30,000 bacteria per c.c.?—They make their standard at 50,000.

1937. And "inspected milk" must not contain more than 100,000?—That is considerably more than what we get. 100,000 is looked on as very good there.

1938. Of course, that would be a marked improvement on the ordinary market milk?—Yes.

1939. Mr. CAMPBELL.—You would not be in favour of fixing a standard for bacterial content?—No.

Prof. MERRIAM.—Say for species, not for number.

1940. Mr. WILSON.—With regard to the milking machine, how do you get it cleaned?—We have got a very thorough sterilising apparatus on the farm. The rubber parts are all put in soda solution after each milking, and all the other parts are carefully sterilised, and that is done after each milking.

1941. Do you not find that is very severe on the rubber?—It is always carried out. Perhaps it might be somewhat severe.

1942. The reason I say that is because I use myself the same process, and I find that there are farmers selling milk as a commercial proposition that would regard the cost of renewal of the rubber as high?—I have not heard Hope complain of that, but it complained bitterly of the number of bottles that are broken.

1943. The CHAIRMAN.—Is that his loss?—Yes.

1944. Mr. WILSON.—I got this result—that a sample of hand-milked milk would have a less content of bacteria than in the case of another sample, similar in every respect, that was machine-milked, and that it would go sour very much quicker?—We found that as a rule the machine-milked milk had fewer bacteria than the most carefully hand-milked milk.

1945. My figures were that the machine-milked milk contained more bacteria, but that the bacteria appeared to be less effective?—We found that the average number of bacteria present per c.c. in the hand-milked milk was 7,500, and in the machine-milked milk 5,700. It was found that one hundred and twenty-five c.c. of hand-milked milk contained at least twice the amount present in the machine milk. I omitted to say that the droppings are always removed by hand, and that their subsequent addition to the machine milk seemed to deteriorate the latter from the standard of bacterial purity.

1946. You did not happen to carry that test to the point of discovering the effect of the machine bacteria as compared with the effect of the hand-producing bacteria?—No.

1947. Has the demand for the "Tallot milk" increased?—Yes, decidedly. We decidedly sell more now than we did at first. A great deal depends on the summer we have. The summer before last was a cool summer, so it was rather difficult to compare results actually with the summer before.

1948. What happens to the milk produced on this farm of Hope's in the winter?—It is taken for general supply, and is supplied ships a great deal.

1949. Dr. MOONMAN.—Is it grass-fed milk?—No. He has got twenty acres within six miles of the city, so he has not unlimited supplies, but he has a 500, and grows crops.

1950. Do the cattle get ensilage?—Yes, they like it.

1951. Is that the "silage" ensilage?—I do not think it is. There is clover, I think, in it.

1952. There is no taste in the milk?—No.

1953. Is it the sweet or the sour process of ensilage?—I think it is the sour.

1954. It does not make the milk smelly?—No.

1955. Mr. CAMPBELL.—He milks his cow in a house other than the place where he feeds them?—Yes.

1956. Mr. WILSON.—What price per pint or gallon does the farmer receive from your Institute, because he is doing it to make a profit?—There were 24,000 pints, and Hope got £226. You can work it out from that.

1957. He received £226 for the milk that was produced in this place?—Yes.

1958. That works out approximately that the farmer receives 1s. 6d. a gallon for his milk. His interest in the scheme is a commercial one?—Yes.

1959. He has no expense of supervision?—No, not the slightest. The Government pay the cost of that. One point I would like to mention is, that the cheapest and most efficient way of supplying milk to an individual baby or family is the way that I have always adopted in regard to my own family, which have been brought up on artificial food. There is a park opposite my house where cows are allowed to run. The cows are milked by a girl who does no farm work. She has got clean hands, and washes the udders of the cow before milking. She milks into our "billy," which is a tin vessel with a cover. We sterilise the vessel. She milks into the "billy," and we tell her we must have the milk warm from the cow. It is brought directly up to our house and put into ice. The cow is tested for tuberculosis. In the case of the general town supply, the people say that they must have holidays, and every Wednesday and Sunday they have a holiday, and you can understand, as a consequence, what the condition of the milk is in the hot weather that is twenty-four hours old. It is mixed with the other milk, no preservatives are allowed to be used, and you can understand what horrible stuff it might be.

1960. The CHAIRMAN.—Is the cow your own property?—No. It belongs to a policeman, as a matter of fact.

1961. It is on free pasture?—No. What I mean to say is, I send my own patients to get milk as I have described; they supply their own sterilised "billy," and the milk is milked directly into it and brought warm from the cow. The great drawback about the general supply is that you do not know the conditions under which milk is produced. If the people carried out the system of hand-maid milking in the meadow it is simple and efficacious. The cow is tested, and is milked in the meadow under the most cleanly conditions, and the milk consumed within a few hours afterwards, and your trouble is over. The first thing we teach the mothers is that they must breast-feed their babies. We found that a mistaken belief prevailed among the mothers that the milk I have described is better than human milk for their children. Of course, we had to combat that idea.

1962. Prof. MERRIAM.—The mothers used it as an excuse for giving up breast-feeding?—Yes.

1963. Miss McNEIL.—It is not so much an excuse as that they think it is a better thing?—Very likely.

1964. Mr. CAMPBELL.—You did not tell us what was the medical report on the children that got that milk. You told us that previous to your scheme among infant operation there had been a very high death-rate due to gastro-enteritis, particularly summer diarrhoea. Was that reduced as a result of the work of the Institute?—That is difficult to answer in a few words. You must remember that it is not simply a question of comparing our death-rate with the death-rate of ordinary children in one year, because our milk is supplied primarily to sick children, and our children are really invalids. It is not, therefore, fair to compare our death-rate with the general death-rate of the community, where there are healthy children. It was worked out in Golden's Institute that in ten years over 2,000 infants died. That was worked out and accepted.

1965. That is with sickly children?—Yes.

9862. You are setting up a very high standard, which you want to be initiated by the ordinary milk suppliers. Now, if we set up such a standard in this country, it would undoubtedly make the price of milk prohibitive for our working people, and what we wanted to get at was whether something short of your expensive scheme would ensure a fairly reliable milk supply?—Don't go into half standards if you have a chance of doing it properly.

9863. It is a question of no milk at all, because although milk and money are plentiful in Australia they are certainly not plentiful here.

The CHAIRMAN.—It becomes a question not of temperance, but of total abstinence?—I can answer Mr. Campbell's question, but it has to be answered on several pages.

9864. Prof. MERRIS.—What Mr. Campbell and I would like to know is, if there has been any appreciable diminution in the death-rate on children fed on this milk?—Yes, in the districts that we supply. Take last summer, for instance, in the districts that we supply with "Tuliot milk" the death-rate was considerably lower than it was at the time that it was not supplied. In the districts that were not supplied with the milk under the same conditions the death-rate was higher.

9865. Mr. CAMPBELL.—Is it not possible that the contamination takes place after the milk leaves the farm? Is it not possible that some of your precautions—I will not say they are quite unnecessary, but at any rate, may not have the effect that you attribute to them?—Why should contamination be attributed to our milk, because the bottles are sealed down.

9866. I mean the ordinary supply. For example, do the bottles that cause this trouble come from the cow, from the farm, or from the streets of the town?—It comes from all the places. There are a thousand and one ways by which milk could be contaminated.

9867. Is the bacteria that causes the trouble well known?—Yes, it is probably a combination.

9868. Would the lactic acid bacteria do it?—No. Lately they have been feeding children on lactic acid.

9869. Is not that the one that is most likely to come from the farm?—If you only know the hundreds of different kinds.

9870. But still, take your milk with from 5,000 to 10,000 bacteria, how many of them are lactic—very nearly all are?—I don't quite follow what you are driving at.

9871. Well, what I am driving at is this, that you are setting up a very high standard for us?—Yes.

9872. And if it is possible that a lower standard would effect the purpose in some branches of the work, and if you showed us, for instance, that this disease in the children was due to a specific organism which was associated with milk or the farm-yards, then all the trouble to which you have gone might be necessary; if, on the other hand, it is due to something which is picked up in the town, then it is there that the extra regulations would require to be enforced. You say you double the price of milk, a price we could not pay over here?—Well, first of all, you know that the contamination comes principally from the handling of the milk. It could not come, as you suggest, from contamination from the roads, because it is bottled.

9873. I am not referring to your special milk supply. I am dealing with the ordinary milk. You took up this scheme because the ordinary milk contained these bacteria?—Yes.

9874. And what I wanted to get at was, where was the contamination of the ordinary milk?—There are a hundred and one different ways—it might come from the cow, or the udder, or it might be faecal contamination, or it might come from the dirty hands of the milkers, or from his clothes, or from dust about the place, or from having open buckets instead of closed ones, or from the use of unsterilised vessels, or in transit, or from fly contamination until it gets to the house, where it is probably contaminated more than in any other place.

9875. The CHAIRMAN.—That is the contamination Professor Campbell was leading up to.

Mr. WILSON.—No one action of the milk question can be treated by itself?—No. If you are thinking of supplying it even to infants you must take every precaution in production, or pasteurising it.

9876. Mr. CAMPBELL.—But if, having taken your precautions there, the contamination comes in afterwards?—We try to have it clean throughout—to take it clean

from the cow; to bottle it in sterilised bottles; to keep it cold and then put it into the baby's mouth.

9877. I quite follow that.—If I was sure that the contamination came after the milk left the farm I would then concentrate my energies on the milk in transit.

9878. I am only putting it to you that it is a serious question for us, because undoubtedly what happens with you happens with us—our milk supply is the cause of a great deal of trouble amongst the children, and we have got to face it as well as we can; and we have a poor population to deal with, that you have not?—That is a difficulty.

9879. And you can face the question of doubling the price of milk with a light heart compared with us?—It was not with a light heart we faced it.

9880. You can get people to take it?—We had the greatest difficulty starting the thing, and only for Lady Tuliot we would never have done it. I feel sure that we have been well repaid for the trouble we have taken.

9881. Prof. MERRIS.—What is the object of the bacteriological examination of the milk?—To see with what clean precautions it has been produced. You see, the more clearly the conditions under which milk is produced the fewer bacteria there are in that milk. In fact, it has been shown by a professor in Germany that when milk was milked into a sterilised bottle and corked up hermetically, and sent in the ordinary way to New York and back again, it never went bad at all.

9882. Where do the lactic acid bacteria come from?—Probably from the dust and dirt. A good healthy cow, milked under thoroughly clean conditions, with the surroundings clean, so you would clean a place before a surgical operation, and milked with sterilised hands, would show scarcely any bacterial return.

9883. Mr. WILSON.—Has that ever been done?—Yes.

9884. In the case of commercial milk?—No, but in the laboratory.

9885. Prof. MERRIS.—What bacteria are looked for in the bacteriological examination?—Well, I understand there are three classes—alkali, lactic acid, and the liquefying bacteria.

9886. What do we understand by the liquefying bacteria?—These are the ones probably that putrefy the milk.

9887. All these are contaminations after the milk has passed from the cow?—Yes. Of course, it is a fact that as regards the pathogenic health a great number of them may not develop.

9888. Of course there are various ways in which the milk might get contaminated after leaving the pail?—Yes.

9889. With regard to this milk supplied by Hays, do you take it all?—Yes.

9890. During the six months of the summer?—Yes.

9891. What price does he get for his milk when you do not take it?—I do not know. I am not so sure that he does not supply it in bulk during the winter months, but I do not know.

9892. You mentioned that you purchased your cows subject to their passing the tuberculin test?—Yes.

9893. And that every twelve months you retest them?—Yes.

9894. And you get rid of the reactors?—Yes.

9895. Can you tell me where the tuberculous cases in?—I am not so sure that there were any of the old ones that did react. We retest every year to be sure that there are no reactors in the herd.

9896. As regards the "cocal" cows that you spoke of, I suppose it is true that the bacteria come from the intestines of the cow?—It is difficult to say.

9897. The cows look very healthy?—Yes, and you can only ascertain that they infect the supply by having a bacteriological examination made of the contents of each of the cow's milk.

9898. What is the wage of the person that you supply gratuitously, and of others that you supply at a reduced rate?—The minimum wage is 6s. a day, the motto is—

"Eight hours' work, eight hours' play,

Eight hours' sleep, and eight hours' day."

9899. Mr. CAMPBELL.—You have got a minimum wage?—Yes. There are a few working men who are old who take less than 6s. a day. Some old men that are not able to work very well are sometimes allowed

to work below the standard wage by the Trades Hall, from whom they have to get permission to work below the standard food.

9900. Prof. MERRIM.—The people who would have all a week would have their milk supply gratis?—It all depends on the family. There is a certain amount of poverty in Melbourne. There are cases where the workmen are not allowed to work, and they cannot earn the minimum wage. Under our Labour Laws men are not allowed to work under the standard wage, unless in exceptional cases, with the permission of the Trades Hall. There might be a man in a family who might be ill, or not able to earn the minimum wage, and they are out of work, and they have to be supplied free. There is a certain amount of poverty amongst people of that class, but the labouring people brought it on themselves.

9901. Sir STEWART WOODROSE.—How is the milk distributed—is it sent in carts to each house?—Yes, we found the poor people would not go for it, and we decided to do that from the very start. From the beginning we felt that we ought to deliver the milk from house to house, and also give the services of a nurse to show how to use it, so that it is delivered packed in tin in bottles, and the bottles are sealed down with a seal bearing the date and the time of milking.

9902. Are they pint bottles?—Pint and quart bottles. 9903. Is this milk a medicine for the child, or for the home supply?—It is medicine for the infants. It is not supposed to be taken by the other members of the family.

9904. How is the other milk in Melbourne delivered, as a rule?—As a rule, is bulk, with the exception of this pasteurising company that delivers in bottles.

9905. And send it out in carts?—Yes, and deliver it cold.

9906. Are there shops and depots in the streets for the general supply?—No, there are no depots in the streets. It all comes directly down from the farms into the platform of the railway station. It is put into carts and taken round from house to house at particular times.

9907. Is this Telford milk delivered twice a day?—No, only once in twenty-four hours.

9908. Is it the two milkings of the cow?—Yes.

9909. You spoke of twenty acres and ninety-eight cows?—Yes.

9910. Would not that seem a small quantity of land for such a large number of cows?—The cows are not fed on the grass, but on the fodder that is produced on the ground.

9911. For tea and general consumption, the poor people are dependent on the ordinary milk that is sent through the streets?—Yes, and it very often goes sour before it is time for the next milking.

9912. I suppose the nurse takes care that the special milk is given to the infants?—Yes.

9913. Mr. CHURMAN.—The ice is bought from a company who make ice?—Yes.

9914. Sir STEWART WOODROSE.—Is the ice taken round in a milk-cart, or is there a special ice cart?—It is taken round in the special milk cart, which is covered in and takes the ice. A block of ice is delivered in each house to keep the milk for twenty-four hours. This ice costs a penny a day delivered.

9927. The CHAIRMAN.—You are Traffic Manager of the Great Southern and Western Railway Co., Mr. Neske?—Yes.

9928. And you have been good enough to furnish in considerable detail information showing the quantity of milk that is carried by your Company to various depots in the country?—I have given you the information.

9929. With regard to the Dublin milk trade, the statement was made here at an early stage of the proceedings by a witness that some of the Company's servants were supplied with milk over your system, I rather gathered, without the intervention of a purveyor. Do you happen to know if this is correct?—We have a dining-room for our employees at Inchicore, and it might be that they got up their milk direct.

9930. That is under your management?—Yes.

9915. Miss McNAMARA.—The milk used for infants is necessarily poorer milk than that used for the ordinary supply?—Yes.

9916. You do not mean that all dairy herds should have the same supervision as in the case of your supply?—No, we do not think that it is absolutely necessary. Very great work is being done by the Agricultural Department in the way of generally improving the farms and the milk supply.

9917. You would recommend that there should be a special milk obtainable for the food of infants and very young children?—Yes, certainly.

9918. A special milk supply for them, because they are specially liable to be poisoned by bad milk or by impurities in milk?—Yes.

9919. Milk that has gone sour would upset the infants?—Yes.

9920. Without taking the stringent precautions which you have mentioned, while one is working up to this standard, would you suggest that the milk should be subjected to pasteurisation?—You have got me into a corner there.

9921. I do not think so?—We are so thoroughly imbued with the necessity of a pure milk supply and high standard that we rather look down on a lower standard.

9922. There are lots of places where children are fed where such precautions could not be taken—small villages, for instance. Do you think there would be any grievous injury to children if they were fed on pasteurised milk?—I think it would be better than a milk supply you would not be able to certify. I do not think that pasteurised milk would absolutely injure the child. I think that the home pasteurisation would be better than the general pasteurisation.

9923. That is pasteurisation carried out in small quantities?—I made a home pasteurising plant of my own which was a considerable success. The temperature was kept up to 140 or 160 degrees for ten minutes. We did it in the case of milk that we were not sure of.

9924. You do not think that that milk would do a child any harm?—No.

9925. It was strongly asserted by newspaper correspondents that pasteurised milk was exceedingly bad for children. It was actually stated by a medical man in Dublin to be poisonous?—I do not want to stand up for pasteurised milk, but I would not say that.

9926. You said that you used rubbers—have you found any objection to the use of them?—Some antagonists to our scheme say that the rubbers give a taste to the milk, but I cannot say that it does to such an extent that the babies object. I think it is better to get out of using rubbers if you can, and the Gordon Institute are using metal discs, which I like better than the rubbers. The objection against the rubbers is not a very big objection, and they can be easily sterilised. What we used were the old paper discs, but we could not seal them, and we discarded them.

The CHAIRMAN.—Thank you very much, Dr. Wood. We feel our obligation to you is considerably enhanced by the very interesting evidence you have given.

Dr. Wood.—Do not mention it. I have enjoyed myself very much.

Mr. E. A. NESKE continued.

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9930. That is under your management?—Yes.

9931. What I understood was, that some of the employees got their domestic supply direct over your system?—If any do, it must be very trifling in amount.

9932. Mr. O'BRIEN.—I did not gather that. I thought it was that the Company supplied their employees at Kingsbridge and other places with milk.

The CHAIRMAN.—The interpretation I put on the statement was that some person became responsible apparently for the payment, and possibly became a distributing agent, and got it at wholesale price?—I am not aware of that.

9933. There might be some confusion in the mind of the person who made that statement with regard to the supply in your district from Inchicore?—Yes.

9934. You carry a considerable quantity of milk to different centres—Limerick, Cork, Glendalough, and other places?—Yes, I have prepared a return dealing with that.

9935. Is the trade in London developing over your system in the South?—I can hardly say it is developing. It is, I think, a trade that will not continue. I have got the figures here for the last half year of milk and cream sent out from Rosslare and Fishguard. We have it in tons instead of gallons in the report.

9936. Mr. O'BRIEN.—Do you mean milk sent to London only or to England?—To England.—The carriage was only 444 for the last half-year, as against 280 in the corresponding period of 1910.

9937. Lady EVERARD.—For milk and cream?—Yes. That shows a decrease rather than an increase.

9938. The CHAIRMAN.—For which you are unable to account?—We cannot account for it. Of course, I may say that from time to time we are asked for rates from places in Ireland to places in England, and we supply the information, but the traffic has not developed as yet to any great proportions.

9939. It shows, apparently, when these inquiries are made that there is a prospect of a trade?—Yes.

9940. Is any milk carried in the summer season?—Cream is carried, but very little milk.

9941. The difficulty is on account of keeping it sweet?—Yes.

9942. Some allegations were made with regard to the conditions under which milk was carried on the railways. Have any complaints reached your Company with regard to the condition of the milk when it arrives at its destination?—No. I made inquiries from all our people who have been handling the traffic, and from our Superintendent's office, where any complaints would be lodged, and I find we have no complaints, except occasionally complaints of shortage—that the number of gallons alleged to be sent were not in the can when it reached its destination.

9943. Do you insist on the right of opening and examining the cans to ascertain whether they contain the quantity specified in the dockets?—Yes, we often open the cans with that object.

9944. Do you take the inflector on the inside of the can as conveying to you the quantity of milk in the vessel?—Yes.

9945. Supposing there was no inflector attached to the can, what means would you adopt then to ascertain the quantity of milk in the vessel?—The men handling the milk would know by the look of the can what it ought to contain.

9946. Prof. MITTAM.—Would it not be as useful to you to weigh the milk?—It takes time and handling to weigh it. It would not matter to a gallon or two if they were over the quantity declared. It is only if one was trying to send a good many gallons more than was contracted for.

9947. The CHAIRMAN.—With regard to the locked cans, what do you do to ascertain their contents?—We do not trouble about them; there are comparatively few in the trade. The usual fastening is a brass hinge, which goes through a hole through the lid, and a split pin is easily put through a staple. That can easily be taken out.

9948. Mr. O'BRIEN.—The cans are not locked?—Not as a rule.

9949. The CHAIRMAN.—Milk is sometimes carried in open trucks?—Into Dublin, scarcely ever. Sometimes at the Limerick district the milk going into Clonsilla factory is sent in open trucks.

9950. I have seen milk cans in open trucks in that section of your line?—Yes, but in the (Dublin) part we either put them into the guard's van or covered vans.

9951. Prof. MITTAM.—Have you any refrigerating vans on your system?—We have about twenty.

9952. For carrying milk and such products?—They are not used for milk. They were built for butter, but it is only in a very odd summer they are used. The people will not pay the price of the ice.

9953. The extra cost of carriage?—They are only asked to pay for the ice.

9954. Mr. O'BRIEN.—The sender has to supply the ice?—We supply it.

9955. Mr. WILSON.—You charge him with the cost?—Yes.

9956. Prof. MITTAM.—What is the rate?—I cannot say, but it is something very small.

9957. Could you say roughly what it would cost spread over ten or fifteen gallons?—We never use the vans for milk.

9958. Mr. O'BRIEN.—Take a six-ton wagon of butter, what do you think the extra carriage in a refrigerating van would be?—About 5/.

9959. For six tons?—Butter generally loads four or five tons.

9960. That would be practically about 1/- a ton extra?—Yes.

9961. I suppose that the cost would come to much about the same for milk?—We have never been asked for refrigerating vans for carrying milk.

9962. Milk would take more space, I suppose?—Yes, it would take more space, because you can load the butter very high in the waggon.

9963. You have no waggon arranged with two tiers?—No, we could not lift the milk up; it would be too heavy.

9964. The CHAIRMAN.—Was there a demand for these refrigerating vans when they were constructed?—Yes, but it only appears to have been on paper. Last summer they were used, and they would be used when the summer is exceptionally warm, but not otherwise.

9965. It is only from certain depots on the system that you can supply the refrigerating vans?—Yes, usually about Limerick and that district.

9966. In dairy counties where butter-making was widely followed?—Yes.

9967. Has the demand for the use of the refrigerating vans rather diminished than increased?—It has been about the same. In a warm summer there will be a demand. Of course, some recent summers have not been very warm, and then the vans are scarcely used at all.

9968. So far as your knowledge goes, no complaints have been made with regard to the conditions under which the milk supply has been received by the consignees at the different depots?—I would not say no complaints were ever received.

9969. With regard to the condition in which the milk was received—I was not dealing with the question of shortage, which is not a matter of interest to me?—Some years ago I based complaints of milk being carried in open trucks to Dublin, and we discontinued doing it. Of course, if we were short of vans we might occasionally have to do it, but I have heard no complaints for three or four years.

9970. Do you impress on the person sending the milk the necessity of having the covers of the cans in perfect order, so that the introduction of dust would be reduced to a minimum?—We do not. We take them as we get them.

9971. You do not think it is any part of your duty to admonish them as to the condition of the cans?—No.

9972. Prof. MITTAM.—You never refuse to accept cans?—No.

9973. Mr. O'BRIEN.—All the rules are drawn up from the point of view of the Company as a carrier?—Precisely.

9974. You are not taking any responsibility for the condition of the milk?—No.

9975. All the provisions are to see that they do not send more than the quantity mentioned in the bill?—The rules are all for the protection of the Company entirely.

9976. And not for the protection of the public?—That is so.

9977. The CHAIRMAN.—Has any complaint been made of the milk being flavoured by contact with other strong-smelling substances?—I have not heard of any.

9978. You do not carry dead pork, for example, in the same van as a rule?—Not dead pork. We would often have to carry things in the guard's van such as fish; but we keep them apart as far as possible.

9979. You recognise the fact that milk is an article that is easily contaminated, and instructions are given to be as careful as possible that it is not brought into contact with anything that is likely to give it a flavour or taint to it?—That is so.

9980. Does the same rule prevail over the system, regardless of whether the milk is conveyed to a creamery, condensed milk factory, or purveyor in the city?—No, we have in the Limerick district a special rate for milk coming in for manufacturing purposes.

9981. Which is lower than the rate for milk sent for domestic use?—It is slightly lower.

9982. Do you know is a large trade done by creameries in sending milk to large centres of population for domestic use?—I can hardly answer that question. Of course, I can tell you that I know one firm here in Dublin who bought a creamery in the South and got a great lot of milk from it.

9982. Mr. O'BRYEN.—Is that a proprietary creamery or a co-operative creamery?—Proprietary.

9983. The CHAIRMAN.—Is the difference in the rate considerable or material between what is charged for milk which is used for manufacturing and the milk that is used for domestic purposes?—It is nearly within a distance of thirty miles. Our ordinary rate is a halfpenny a gallon. We carry within thirty miles of Limerick at sixpence a can.

9984. A fixed price per can?—Yes, instead of eightpence-halfpenny for a seventeen gallon can.

9985. Prof. MATTAM.—That is because there is a more or less constant traffic?—Yes, and there is a certain amount of road competition. There is a great deal of milk carried by road into Limerick.

9986. The CHAIRMAN.—And into Tipperary?—Yes.

9987. Mr. O'BRYEN.—And motors are used?—Yes.

9988. The CHAIRMAN.—Have you ever noticed the exterior of the cans being in an unclean condition when carrying milk to Dublin or Cork?—I have not. Since I was asked to give evidence here I have been watching, and I have not seen any dirty cans.

9989. You have seen nothing that would attract your notice as showing exceptional cleanliness on the part of the consignee?—I have not.

9990. The cloths that are used for the purpose of preventing the splashing have been reported to us as being in an unclean condition. Did that ever attract your notice?—No, I have not noticed it. Of course, I think that the cloths should be used always.

9991. Prof. MATTAM.—To prevent leakage?—Yes, and dust from getting in.

9992. Do not the cloths get filthy dirty?—Yes.

9993. Do you not think that the milk becomes contaminated via the cloths?—They could be washed. Milk is carried a considerable distance along dusty roads, and in a dusty street afterwards, and it is more liable to get dust on the roads than in our vehicles, and these cloths would prevent the dust from getting in to some extent.

9994. Miss McNAMARA.—But if there was a suitable cover would not that prevent the dust getting in?—With the kind of cover they use it is possible for some dust to get in.

9995. Mr. WILSON.—These are some of the kinds of vessels that I have sketched?—In this sketch the dust would be between the cover and the outside of the can, and the oscillation of the vehicle would suck in the dust.

Mr. O'BRYEN.—I thought that the use of cloths was illegal. In my district people would be prosecuted for using them. I am not allowed to send down milk to the creamery with cloths over the milk.

9996. Mr. WILSON.—You have said that it is no part of your officers' duty to bother about the public health?—No.

9997. And if they saw a filthy cloth on a can they would not refuse it?—No, as common carriers we would have to take it.

9998. Supposing this Commission came to the conclusion that it would be desirable to standardise milk vessels, so that dust would not get in, would there be any difficulty in that, so far as you can see?—No; we do not mind what kind of can they put the milk into.

9999. What would happen if one of your officers saw a can of filthy milk?—They would not see the milk, they would only see the outside of the can.

10000. You have said you often open the cans?—We do not do that frequently. We have never seen dirty milk. I have seen the inspectors and the people who handle the milk, and the men who have opened the cans, and that is what they have told me—that they have not seen dirty milk.

10001. Mr. O'BRYEN.—Do you know if inspectors of Food and Drugs, or health inspectors, or any of these people come to the stations to inspect the milk there?—I do not know.

10002. As far as one can make out, I think from the evidence, it does not appear to be anyone's business to inspect milk coming in by train?—I do not think it is, except the owner's.

10003. Miss McNAMARA.—Is there any other way you could suggest for measuring the milk without opening the cans, which is not satisfactory? Could not the weight of the can be taken beforehand, and then the weight of the milk?—We do not open a can unless we have reason to think that there is more in it than appears on the bill. It would not be so convenient

to weigh milk. It is often brought in just as the train is leaving, and the weighing machine might be on the other platform.

10004. Mr. O'BRYEN.—Would it not facilitate both your officers, and be more satisfactory from the public health point of view, if you insisted on all cans of milk that were delivered to you for carriage being sealed; you would be in no way responsible for the quantity there?—Yes, but a man may declare a lot less milk than is has put into the can.

10005. Prof. MATTAM.—Do you ever get any complaints of giffing?—We have had none.

I think that is what Mr. O'Brien wants to get at probably.

10006. Mr. O'BRYEN.—Fairly that, and I should like to make the railway men responsible for the condition of the cans—that is to say, whether the lids were properly fixed, and whether they were proper lids, and that the company would be empowered to go to the consignee of the milk and say, "We refuse to take these cans because they have not proper lids, and also they are not properly fastened."—I think the railway company's power would be limited to insisting on the cans being such cans as would carry the milk safely and nothing more.

10007. Prof. MATTAM.—You could insist on the cans being made to pattern?—I do not think so.

10008. You can insist on other things being carried in certain vehicles which you are convinced are suitable, for instance, gunpowder or any other inflammable things?—Yes, but we have special powers in regard to them.

10009. Mr. O'BRYEN.—You would have to obtain special power for the milk?—I think so.

I should say so, too, but I do not see why we should not get the special power and lay the responsibility on you.

10010. Dr. MOSEMAN.—Would it add very much to the cost of the transport, Mr. Neale, to put a special milk wagon on?—There is a special van on the train that carry milk.

10011. And nothing else is carried in that—it is exclusively for milk?—Milk sometimes goes in the guard's van.

10012. Can you put on a special milk van without very much extra cost?—On all the trains it would cost a great deal of money.

10013. Mr. O'BRYEN.—It is a matter of organisation. Your Company is perfectly willing to do anything for the traffic so long as other people will organise it?—We will not use special vans unless we have a load.

10014. If people came to you to organise a trade you would say, "we will consider whether we will give you special rates"; but the railway company never, so far as I know in this country, makes anything of that sort. They are always open to treat when one comes forward with a proposition?—I do not think we would reduce the milk rates, they are very low as it is.

10015. It always goes with someone else but the railway company to initiate and organise?—Yes.

10016. The CHAIRMAN.—Are there certain trains by which the milk traffic is carried, say, to Dublin and Cork, and is there a milk van on those trains?—There are two trains which carry milk to Dublin, and there is a milk van on those trains.

10017. Dr. MOSEMAN.—Nothing but milk is carried in these vans?—That I cannot say, but I should think so.

10018. The CHAIRMAN.—If the pressure of traffic demanded it might be used to relieve the congestion of the guard's van?—It would.

10019. But the train starts with the provision of a milk van attached to take milk that will be sent by that train?—Yes, and we take milk at the intermediate stations.

10020. There would not be many stations that would have a load of milk for a wagon?—There would be very few.

10021. Mr. WILSON.—I take it that the Irish system of carrying milk by rail and the English system are practically the same?—They are.

10022. Would it surprise you to know that from a very careful examination of milk pollution in England the railways were credited with 20 per cent of the total pollution?—It would surprise me.

10023. It is just half as bad as the farms, which is responsible for 40 per cent of the dirt in milk, according to the analysis?—Even assuming that 20 per cent is right, I do not think that the same percentage would obtain here, because you see the milk is carried so

England in vans that are periodically open. There are wide bars all the way up, and a great deal more dust would get into these than into the covered vans we use.

10034. And probably we might also claim that the average distance that milk is carried by rail is less in this country than for the big industrial towns of England?—It would be probably less.

10035. Still, allowing for that, according to the English commission, there must be a very considerable percentage of the milk contamination due to the railway company?—I think we have less dust in this country.

10036. A wetter climate?—Yes.

10037. The Chairman.—And different soils?—Yes.

10038. Mr. Wilson.—If there was sediment lying at the bottom of one of those churns or cans that are taken by rail, your officers would have no knowledge of it?—No.

10039. They would estimate the dirt by what they saw on the top of the milk?—Yes.

10040. Would there be any difficulty in regard to the city terminals, and also large towns on the route, taking in milk from the country by rail, in having a special place arranged in the station premises where the milk could be poured from the vessels into the vessels in the delivery cart?—There is very little room at Kingbridge.

10041. In speaking of places where within the station premises they pour the milk out?—If you did that at Kingbridge I think it would do the milk harm, because the horses are standing there outside the platform.

10042. Do you suggest that the milk is not poured out of all?—Yes.

10043. There is no transfer of milk in the station premises at all?—No.

10044. Then there would be no need to make the provision I suggest?—No.

10045. But in places where they have a system of pouring the milk out in the stations, would you not think that it would be reasonable for the railway company to provide accommodation?—I should think not. It is not part of the carriage. The railway company is only the carrier. On contract should finish when we have earned the milk to its destination.

10046. Prof. MERRITT.—Do you think that there should be any provision, so that samples of the milk could be taken by the sanitary authorities?—No.

10047. Would it be possible to have a room on the station premises for the purpose?—There would be no need to take it into the room, it could be taken out at once.

10048. Mr. Wilson.—By the very fact of having no place free from dust and dirt blowing about, the man sampling the milk would have to contaminate it?—To some extent.

10049. Unless a place were provided?—Yes.

10050. Prof. MERRITT.—A room would be sufficient for the purpose?—We have no room.

10051. You could make a room in your big premises. There would be no objection on the part of the railway company to provide accommodation there?—(No answer.)

10052. Mr. O'Brian.—The railway company could get over opening the cans, if they had any doubt as to the quantity of milk in the vessel, by weighing it. When the vessel is not sealed anyone could do practically what they liked with the milk.

10053. Mr. Wilson.—What would your chief objection be to having all the milk sent in sealed cans?—I would not have any objection to it. If that were done we would find some other way of ascertaining the quantity of the milk besides opening the vessels. I would like it to be understood that we do not open many cans. We only open an occasional one that we believe to contain more milk than the sender has declared.

10054. Mr. O'Brian.—We have had letters on the subject, and from personal observation one has seen cans sent by train with newspapers stuffed under the lids. I have seen cans with the lids not properly fastened down, and, therefore, anyone could open these lids, and if there was anyone down at the station where the milk is sent from, and where the vessels are lying about, they could tamper with the cans, and there would be also danger of contamination?—The chance of anyone tampering with the vessels in a

country station is remote, because the cans are bound to stand in the loading and unloading of the milk, and they watch the milk while it is there.

10055. The man taking the milk might sell it. It happens quite frequently that from the dairy farm to the creamery the milk is sold along the road, and some water put in to make up the quantity. The man may charge a neighbour who charges him with a penny for the milk, which goes into his own pocket.

The Chairman.—Is there not power to send milk to creameries in locked cans?

Mr. O'Brian.—No. They cannot lock the cans with anything except a seal and that could be broken. There is too much risk of the creamery, and it would take too long to fasten it otherwise. As it is, it takes about three hours to receive the milk at the creamery. In the summer they start at 6 o'clock, and go on until, perhaps, 9.30 a.m. receiving the milk.

10056. Prof. MERRITT.—How far from town, Mr. Neale, does most of the milk come from on your line?—About one hundred miles.

10057. I suppose if there was a constant traffic from the country to Dublin the railway would consider the desirability of providing refrigerating vans—it is within the range of practical politics?—Yes.

10058. If they had sufficient traffic they would consider the expediency of it?—Yes.

10059. I am sure you will admit that a material like milk should be carefully looked after, and every accommodation made by the company for its due despatch?—I think we do that.

10060. As regards the churn in which the milk comes by rail, I think the Commission would look upon the fact that these cans might be opened as bad for the milk and for those concerning the milk, and they would prefer to see the churns all closed; and it would be a good thing, from our point of view, that provision should be made by the railway company for weighing the milk?—There would be no great difficulty about that. If you think it well to keep the milk in locked cans, the railway company will not object to that.

10061. The Chairman.—If additional expense had to be undertaken by the railway company or carrying company, they would be within their right to charge an increased price to cover the outlay consequent on the altered method?—Yes.

10062. Because the public have a right to pay the reasonable cost in order to safeguard themselves?—Yes. It is a question of paying with their lives or with their money.

10063. Prof. MERRITT.—The quantity of milk that is coming into Dublin has not fluctuated very much during the last ten years?—There has been a considerable fluctuation. I think, if you look at my figures.

10064. Lady EVELING.—Do the inspectors under the Food and Drugs Act attend at the railway stations to take samples?—Not to my knowledge. In reply to Professor MERRITT's question, I may say that the variation in the quantity of milk sent in to Dublin has been considerable. In 1898 there were 473,000 gallons, and in 1911, 768,000 gallons.

10065. Prof. MERRITT.—I was referring to the whole system?—Dealing with the whole system, there is not much variation.

10066. The Chairman.—In 1908 they nearly dropped to half the number of gallons sent in 1911?—That, I believe, arose from people in Dublin who buy milk, such as the Leman Deas, from the country districts purchasing in different districts.

10067. Have you any idea of the number of purveyors of milk who receive consignments at Kingbridge?—I have not. I could get you the information if it is of any value.

10068. I was curious to know whether all the purveyors of milk were getting their supplies direct from the country, or whether they were getting it through an agent who was making a profit out of it as well?—I cannot tell you.

10069. If it would not entail too much trouble, I would be glad if you could tell us as reference to Cork and Dublin the number of consignees who receive deliveries at those stations?—I will give you the information with pleasure.

10070. Prof. MERRITT.—You mentioned that you thought the fluctuation was due to the fact that the milk was brought in different districts?—Yes, the milk purchased in country districts for Dublin.

10071. Sometimes they buy in districts on the Great Northern line?—Yes.

10083. There is no actual deficiency of milk coming into Dublin?—No. In 1908 the figures were as I have given you, 472,389 gallons, and in 1911, 708,845. Indeed, there has been a gradual increase from 1908 upwards.*

Mr. O'BRIEN.—The evidence we had was that on the Great Southern it has fallen very much within the last three or four years.

10084. The CHAIRMAN.—It might be accounted for by the change in the farms?—A variety of causes may account for it, such as the prices at a neighbouring creamery.

10085. Mr. WILSON.—Could we get a similar return from the other railways?—I am sure if you asked for it they would give it to you.

10086. The returns would suggest to us whether there was a greater shortage?—I think you have already asked that information from the other railway companies.

The CHAIRMAN.—We have applied for that information.*

10087. Mr. O'BRIEN.—Can you tell me how many 17-gallon cans go into a wagon?—I can let you know.

10088. The reason I ask is this—do you suppose it is half a wagon?—Yes, I think so.

10089. Or more?—I should say it would be between three and four tons.

10090. You said that the difficulty of a double tier would be the difficulty of raising the milk?—Yes.

10091. Do you think that the ordinary wagon that carries six tons could be arranged with a double tier?—The milk would be too heavy to handle.

10092. The wagon is only intended to hold a certain quantity, and if it has a double tier that would be more than it could carry?—Some vans are of different capacities. If we worked the traffic in two tiers, it would be dangerous to load and unload the milk.

10093. The CHAIRMAN.—The floor space of the ordinary wagon when the cans are full would certainly amount to the weight that the wagon is constructed to carry?—The vans are varying. Generally they would be 15 by 7½ feet. I think that would take somewhere about thirty cans.

10094. Mr. WILSON.—If you came to the two-tier wagon you would have to adopt the Continental system of cubical cans?—We would have to make alterations.

10095. Mr. O'BRIEN.—I do not know that they have any odd store vans for carrying milk in England?—I do not think so.

10096. Prof. MERRIAM.—What are the so-called milk vans that you see in England?—They are made with bars, but there is as much space as there is wood.

10097. Mr. O'BRIEN.—I think that if one had chilled vans, to pay for the cost of these vans you would want to take them as full as you could, and the question is whether having a double tier would overweight the vans—the weight that the ordinary van is capable of taking.

Mr. WILSON.—What would your criticism be on the Continental system of sending the milk by train in cubical cans?—I think the existing one is good enough if the cover were better.

10098. And you can adequately load a wagon with them to your satisfaction?—We are never satisfied.

10099. Prof. MERRIAM.—There is not much room lost in the packing of the cans?—No.

10100. Mr. O'BRIEN.—You sometimes have 17-gallon

cans only carrying twelve gallons?—They are generally full. They are fairly easily handled for such a heavy weight.

10101. Do you get many complaints about the way you handle the empty cans sent back?—We have had an odd complaint about the cans getting bruised and broken, that would occasionally occur.

10102. And I see that one of your provisions is that the lids should be properly fastened?—Yes.

10103. But there is no provision made for the cans being properly fastened when the cans are returned empty?—They are, as a rule.

10104. Because, as a rule, they are retaking about?—I examined the lids of cans yesterday and they were all fastened on in different ways.

10105. These were the empty cans going back?—Yes.

10106. I have seen them frequently at the Limerick Junction with the lids only hanging on.

Prof. MERRIAM.—Do the cans always go back empty?—Yes.

10107. Mr. O'BRIEN.—They do not have grains or wash in them?—There is generally a little wash looks like dirty water.

10108. They are not used to take back brewers' grains?—No. Our people would know the weight of an empty can, and if we found anything in them we would charge for it.

10109. I did not mean sending them as empty cans, but whether there is anything put into them?—No.

10110. Prof. MERRIAM.—We have heard of pig stuff being sent back in cans?—That is not done.

10111. The CHAIRMAN.—It has been represented to the Commission that the earnings of goats is very high. Do you happen to know what rates goats are carried for. We are somewhat interested in goats?—If the goat is put into a crate it is carried for very little money. I could not tell you what it is, but I can send you the rates.

10112. Here is an illuminating passage from evidence that was given before us:—"Do you find it difficult to send goats by train?—Yes, I have sent them with a collar and chain. The railway companies charge tremendous rates—£1 6s. 2d., £1 6s. 4d., and £1s. I find it charged. They charge by weight, and they have big heavy crates."—We do not not supply the crates. We would only charge for the animal or the weight.

10113. They are not sent with a collar and chain like a dog?—I do not know. If a single goat is brought up and wanted to be carried in a cattle wagon the rate would be high.

10114. You would charge for a half wagon?—Not quite half, but it would be high. We would have to send the wagon with the goat. If it is of any interest to you, I will send you the rates by passenger and goods train.

10115. We would be glad to get them.

Lady EVERARD.—Do you consider that it would be better to send a goat the same way as you send a ram, in a crate?—Yes.

10116. The CHAIRMAN.—That would be the cheapest way?—Yes.

10117. Mr. WILSON.—It is not the manners and customs of the animals that make you send them in crates?—No, but we can put them in a corner of the wagon.

10118. The CHAIRMAN.—Thank you very much, Mr. Neale. We are much obliged to you, and if you send us the figures we asked for we will be very grateful. I shall be glad to do so.

Mr. Wm. J. COURTNEY, J.P., CHAIRMAN.

10119. The CHAIRMAN.—You are Chairman of the South West District Council?—Yes, sir.

10120. And you also have some interest in a Labour League?—Yes, a Labour Union.

10121. Is there a scarcity of milk in that district among the labouring class?—A great scarcity.

10122. Do you mean a scarcity from inability to procure, or want of money to buy?—From inability to procure.

10123. People having money to buy and anxious to procure a supply of milk for their families, are unable to get it?—Yes.

10124. Is the scarcity widespread in your district, or is it confined only to a certain locality?—It is widespread.

* See Appendix B, page 300.

† See Appendix F, page 305.

The cows are there, but the owners will not comply with the Order, owing to the expense that they would have to undergo.

10109. Farmers refuse to sell milk, simply because it would bring them under the provisions of the Order?—Quite so.

10110. And it is your belief that the application of this Order has limited the supply of milk to the poorer people?—Undoubtedly.

10111. Do you think that the provisions of the Order are drastic or severe on the cowkeepers?—I do not think so. I think the inspection and the cleanliness were really necessary.

10112. And you think it was really a wise provision to promulgate the Order and put it into operation?—Yes, only for the one thing—the sale of milk was allowed to go on. Only for that, I would not say one word to the inspector visiting and seeing that the places were properly clean.

10113. But the stoppage of the sale of milk is the grievance?—Yes.

10114. You believe that that is directly traceable to the application of the Order?—Yes.

10115. What provision does your Council make for the carrying out of the Order—have you a veterinary inspector?—Yes.

10116. And have you a dairy inspector as well?—Yes.

10117. Does the veterinary inspector report to the Council the condition in which he finds the cows?—Yes.

10118. And he only inspects those cows whose owners have been registered as purveyors of milk?—Quite so.

10119. Are there any farmers in that district who have not registered?—There is not a registered dairy within three miles where I live.

10120. That is Bellewstown?—Yes; there is no registered dairy nearer than Duleek. I know of two registered dairies in Duleek, and I think one of them supplies the city here.

10121. Sends milk into Dublin?—Yes, as far as I gathered the information, and the other supplies the village of Duleek or partially supplies it.

10122. Do you think that the working classes realize the value of milk as a food for their children, and if milk were available, do you think it would be largely used as a food?—Yes. I left Bellewstown this morning and I met a girl twelve or thirteen years of age going two miles with new milk from a friend to her father, who was dying of consumption.

10123. And there was no means of getting milk more conveniently?—No; the farmers are afraid to sell the milk owing to the Dairies and Cowsheds Order.

10124. How are the inhabitants of the labourers' cottages supplied with milk—are they finding the difficulty just as acute as others?—I have counted them in in the hundred and fifty people who are suffering from a scarcity of milk.

10125. Do they keep goats as a rule?—About Bellewstown, they keep a lot of goats—sixteen or seventeen goats, and only for them the poor people would be in a very bad way for want of milk for their young children. It is not so good for young children, I understand, as cow's milk.

10126. Is not there a great objection to the supply from goats in view of the fact that there is a great scarcity in the winter?—That is the time that there is the worst hardship.

10127. I suppose the goats that are kept are the ordinary common breed?—Yes, the ordinary common breed.

10128. And they only milk for a very limited portion of the year?—Yes; they give none, you may say, from October to March.

10129. What class of people do you believe are prevented from selling milk by reason of the Dairies Order—I mean, are they farmers who keep, say, six or eight cows, or are you alluding only to people who keep one or two cows?—There is one farmer with twelve cows.

10130. And he refused to sell milk?—Yes.

10131. Is it because his cow byre is not in a proper condition?—He does not want the Inspector to visit him or make any report about the way he keeps his cows. He separates milk and sends his calves and sells butter to people in the district.

10132. Would you think it right to put the Order into operation against a man selling butter as a product of milk, just as against the man selling milk?—It would

be harder on the poor. What I would say is that any person owning cows, the Inspectors should inspect the animals and the sheds and report.

10133. Mr. WILSON.—Whether it is butter or milk that is produced?—Yes.

10134. The CHAIRMAN.—You have reason to believe that the customs are not above suspicion at the present time?—I would say that they are not.

10135. And in all probability if the Inspector was to make periodical visits, changes would have to be made in the manner in which milk is handled and the cows looked after?—Yes.

10136. Is it the capital expenditure that is involved, that prevents people from making the alterations?—The men who own the twelve cows live on portions of a commonage; he has no lease and he has no room to make special provision.

10137. He would not feel justified, having regard to his income, to carry out alterations requiring a large expenditure?—No.

10138. That is a great difficulty, no doubt, but apart altogether from this particular individual, what other class of people have abandoned the sale of milk?—There were two or three places that the population around could be supplied with milk from, and they stopped selling it. There was a publican who kept four or five cows, and there are poorer people who keep two or three cows, and they all got in dread of being prosecuted and they gave up selling the milk.

10139. The publican could afford to make the necessary alterations?—He is much the same as the others, only a tenant holder.

10140. He did not think he had sufficient title to justify him in making the capital expenditure?—No. It is not easy to get rid of a publican.

10141. They seem to be well rooted in the soil?—Yes.

10142. Have you thought of any scheme whereby the scarcity might be overcome?—There are respectable milkmen who would be able to purchase a cow if they got growing convenient, but in our district the lands are all set on the eleven months' system, and there is no chance of getting grazing. There are a number of respectable people who would keep and care a cow for their own benefit if they had the grass convenient.

10143. Have any lands been divided in your district by the Estates Commissioners within recent years?—None whatever.

10144. No estates have been acquired for evicted tenants or for any purpose whatever?—No.

10145. You suggest that land should be acquired?—Yes.

10146. Where lands are in the hands of a Government Department, one could understand provision being made for the carrying out of the idea in your mind, but how would you propose to deal with the problem when there is no stopping of the land going out?—Ask the State to provide a quantity of land that people could graze cows on.

10147. A kind of common pasturage?—If the land could be taken compulsorily or otherwise it would be good, and I thought in my mind if four acres could be taken compulsorily, the same as the land was taken for the labourers' cottages, and given to respectable men who would be able to purchase a cow and have that beast inspected by the veterinary surgeon four or five times a year, and to get the land at not less than 15s. or more than 30s. an acre, according to the quality of it.

10148. Mr. O'BRIEN.—Irish acres?—Statute. By that means you would be able to provide hay and root crops for the cows, more especially as you would want her to milk in the winter time. If that land could be compulsorily taken and have the cows regularly inspected, and supply the milk to the poor people who wanted it, and if a man objected to the sale of the milk take the land from him.

10149. Would you put that under the control of the District Council?—Yes.

10150. The District Council or the County Council?—The District Council.

10151. What would you think of a scheme that would empower the District Council to enter into a contract with a landholder in a district to supply a fixed quantity of milk and deliver it over a certain area, at the price to be determined between the person who was supplying the milk and the District Council?—I would think well of it.

10182. Do you think that would be an easier way to deal with the scarcity than the way you suggest with regard to the acquisition of land, because I am afraid that would involve legislation?—Yes; provided that he sold the milk at its value.

10183. In what I have in my mind at the present time, the milk would be sold at a price fixed by the District Council. They would enter into a contract with the landholder to supply a fixed quantity of milk at a fixed price and to deliver it over a certain specified area—I think that should work. It would be well worth a trial, and there is an immediate necessity for it.

10184. Do you think the District Council as a whole would undertake the duty that this would entail as a portion of the duties imposed on them, say, for example, under the Public Health Act?—I am afraid they would not.

10185. You think it should be made compulsory on them to do so?—The District Councils are composed of men generally that know nothing about this want themselves, and I think it would be very hard to get them to undertake that work.

10186. You do not think that they would have sufficient interest in the promotion of the well-being of the inhabitants over whom they hold jurisdiction, to undertake a duty of this particular kind. For instance, they carry out similar duties under the Labourers Acts in acquiring land?—Yes. Of course, if the Act was so fixed and they were empowered to do so they might. I would not be able to speak for the mind of every district acquisition, but there is a fair share of time lost in working up what you have said.

10187. The Labourers Acts?—Yes, and Sanitary Laws and District Orders, and a great many other things that have to be done by the District Council.

10188. I quite agree, but don't you think this would be just as important as any of the other duties they are discharging at the present time?—Yes.

10189. And there is a necessity for an effort in that way in your particular district?—Undoubtedly.

10190. Lady Eversham.—Do the farmers employ many of the labourers who live in these hundred and fifty houses you spoke of?—There are not farmers about. A lot of these labourers work on the roads under direct labour, and with neighbouring gentlemen.

10191. Could they not get milk from these gentlemen?—They don't sell milk.

10192. The CHAIRMAN.—Would any of them get milk as a perquisite with their labour?—They would want to be bound like. They don't, as a rule, get milk. Formerly they used, but they don't now.

10193. What has brought about the alteration?—Well, I should say that since the labourers got the cottages and that the land was taken compulsorily on some of them, it had brought about a change between the labourers and the employer.

10194. Lady Eversham.—Have you ever thought of co-operative growing, because I know that in some places they have taken a field and the labourers put a cow in that field?—I think they do in Dorset, but that is only on the eleven months' system.

10195. Could not the labourer keep his cow for the one month?—If you lose any time in taking the land, say, three days after the 1st December, you will not get it for the year.

10196. I mean that you should form a society of eight or ten men to take the matter up. That has been done in some places?—It is doubtful whether you would get eight or ten men to take it up who are sufficiently keen.

10197. Do you mean to say that the people who want the milk are very scattered?—Yes.

10198. Have you heard of the scheme of Father Barn, of Oldcassell?—Yes, I read his evidence here.

10199. It was not given very much in detail in the newspapers, undoubtedly. You say that none of the ranches have been divided up around you?—No, and it would be a great blessing if they were.

10200. Unless the ranches were divided up it would not be possible to put Father Barry's scheme into operation. Is Father Gillock your parish priest?—Yes.

10201. He would be a very good man to take up a scheme?—Yes.

10202. Do you think that if the District Council entered into a contract with a farmer to supply milk in the district, that would be a way out of the difficulty?—Yes.

10203. Dr. MOOREHEAD.—There are a hundred and fifty cottages?—They are not all cottages.

10174. Lady Eversham.—Could not people graze on this commonage?—Yes; but there are three or four roads leading off it, and there is no way of keeping anything on it, and when the animals get on to the road you are concerned by the police.

10175. Mr. O'BRIEN.—You don't tether the cows?—No. The commonage is only money lands.

10176. Dr. MOOREHEAD.—How many Union cottages would you have of the hundred and fifty people that you mentioned?—There are eight where I live.

10177. They are pretty close together?—Yes.

10178. Could they not combine for the co-operative grazing that Lady Eversham spoke about?—Their wages are only about 10s. a week, and by the time they pay 1s. 3d. for the cottage they have not a lot to spare; and they would tell you that they have as much land as they are able to pay for.

10179. Lady Eversham.—Have they got an acre of land?—Some have got an acre and some only half an acre.

10180. Dr. MOOREHEAD.—Do they graze any of their plots?—They stop a portion of it, and have a little meadow and sell the hay, and the commons provides for the grazing of the goats.

10181. Lady Eversham.—Don't you think that if there was an improved breed of goat in the district it would be a great advantage to the people?—Yes.

10182. We have had evidence before the Commission that the Toggeryburg and the Anglo-Nubian will bid at all times of the year?—That would be a great benefit to the cottagers.

10183. We have had evidence that these goats will milk for ten months of the year?—They would be a great advantage to the people.

10184. Dr. MOOREHEAD.—They keep goats in the district?—Yes.

10185. And they supply the milk to the young children?—Yes.

10186. So they are not absolutely bereft of milk?—In the winter time of the year, that's all.

10187. At this particular season, for instance?—From the end of October until coming into March.

10188. Do they use condensed milk at that time?—I don't think they know what condensed milk is.

10189. What is the substitute given to children?—Red tea.

10190. And do they give that to the young children?—Yes.

10191. Are they sickly in appearance?—They are far from healthy in appearance. I notice that school children look weak and delicate, and I attribute that to the want of milk.

10192. Is there much consumption among them?—I have been told of a case—it is a registered dairy, and there is a person in consumption in the house and milk is sold out of it.

10193. Is there consumption amongst the children?—There is a man dying beside where I live.

That is only two cases in a big district.

10194-5. Lady Eversham.—You have no meals for school children?—No, only what bit of bread they bring with them.

10196. Do you think there is much stewed tea used in your district?—Yes.

10197. Do the children get stout?—Yes, and sugar and water with it, instead of milk.

10198. Do they get stout or only baker's bread?—Yes, baker's bread, because they cannot obtain butter-milk to make bread at home.

10199. Mr. WILSON.—I would like to go a little further into this question that Lady Eversham has raised about the possibility of getting the men themselves to band together. If Barry's scheme is only applicable where the land is broken up. There is nothing in the world to prevent an association of labouring men or small farmers banding themselves together and renting a field in common. On the other hand, the suggestion you made against that was that they would be very scattered. That suggests that there are two separate answers to the problem of milk in your area—one is that, in the scattered district, they should be induced to take up the improved class of goat; and that where they are close together they should form themselves into a co-operative society to rent a field?—It would be a very good idea, and I have no hesitation in saying that people would be glad to go a mile of ground for milk. The difficulty would be that the eight or nine men might not be able to pay the rent.

10200. Didn't you tell us at the beginning that they were able and willing to buy milk?—Yes, as far as a

bulkyweight and a pennyweight is contained, and often they would be without it if the wages did not reach it. The wages are low in the district.

10201. So that the quantity of milk that they would be willing to buy would be very small?—It would.

10202. Therefore the milk of one cow would be sufficient for quite a number of people?—Yes, it would spread; that is if the person sold the milk, but if a person has a cow and owns a calf, he will not have much milk to sell.

10203. The problem is that the people are so poor that they only buy a very small quantity; would that not make it still easier for them to get into action this scheme of eight or nine men joining together to buy only one cow?—I don't follow you.

10204. If they are as poor as you say, and if they are only able to buy very little milk, the society that they would form of eight or nine men, instead of having several cows, one or two cows would be sufficient, and instead of paying their penny for milk, they would be paying it towards the price of that cow?—Yes.

10205. Would that not be the same thing in the long run?—You would want only a small portion of land for one cow, and the fields are large on the eleven months' system, and how would you get portion of the land small enough for only one cow? I remember there were twenty-two people who had a bit of land. That was taken from them, and they had no means of keeping a cow.

10206. Lady Eversham.—Would not some of the eleven months' people give the grass for a cow?—If some persons were brought to know on them. The doctor told me that he was attending a little boy suffering from pneumonia, and he could take no food; as soon as he saw food his stomach would turn, and the doctor ordered milk, and the parents could not get milk to buy; and it was the desire of a lady that kept the child in milk until he got strong.

10207. Could not Father Gillock approach these eleven months' people and try and induce them to give grass? I am sure Father Gillock would be only too glad to do whatever he could?—I am sure he would lend himself to that.

10208. Mr. O'Brien.—What sort of pains would they charge for the land?—These graziers might charge prohibitive prices.

10209. Lady Eversham.—The usual rent is 4s for the six months.

Mr. O'Brien.—We have had evidence that in the winter it was 25 10s.

10210. Lady Eversham.—That is the rent about Dulock, 4s; and if these people have their own plots they could pool their hay and feed their cows?—If we had to pay the price of the eleven months' system it would be hard to make the rent. If the people were bound to the one pasture, when the eleven months would be up perhaps the field would be taken off them, and it would be a great loss to people to have cows and no grass to them.

10211. Mr. Winsor.—Is your point the old story of fifty of tenners?—Yes.

10212. Mr. O'Brien.—They might get the grazing for their cow one year and not be certain of getting it the next year?—Quite so.

10213. The Chairman.—The graziers are generally non-resident, and they have no interest in the district, and they would not be likely to do anything pro bono publico.

Mr. Winsor.—What about the landlords?

The Chairman.—There are a variety of circumstances that affect the ownership, as well as the tenure, of the land, and there would be an enormous difficulty in having any scheme on the ever-changing conditions that are going on?—That is quite so. Some of it might be a game preserve, and you would be hardly allowed to put in your foot on it to milk a cow.

10214. Mr. O'Brien.—The Parish Priest would probably know about the tenures, and would, perhaps, be able to say "such a field is owned by such a man, and I believe we can get that field."

The Chairman.—The reason I despair of it is because this obnoxious has been in the district for a considerable time, and the difficulty to which Mr. Courtney refers has been in existence for a considerable period?—I am afraid they would take very little notice of Father Gillock. I have heard Father Gillock speaking of this years ago, if the people would try to prevail on these parties to give land, but it is no use.

10215. They are not amenable, because they do not live in the district, and they simply use the land for the purpose of fattening their cattle, and take no more interest in the people than if they lived on a desert island?—One grazier comes from the Co. Mayo to take land.

10216. Mr. Winsor.—Are the District Councils themselves farmers?—The majority of them are landholders.

10217. And it is not a question of the creamery affecting the supply?—No.

The Chairman.—The creamery has no influence whatever on the supply.

10218. Prof. Marshall.—How long is it since this milk question became acute?—Since the Domes Order came into force.

10219. That is about three years ago?—Yes.

10220. Before that time there was no difficulty?—Before that time the man who owned ten cows would receive tenners or a shilling a day for his milk, and since that was stopped the people are deprived of getting milk.

10221. There is no objection to the man who lives in the Union cottages keeping goats?—There is. The goat is a very mischievous animal. There are sixty or eighty acres of commonage and the goats roam all over that.

10222. There is no clause in the agreement when they take these cottages forbidding them from keeping goats?—No, but the adjoining owner would summon if they trespass on them.

10223. So they don't keep goats, in order to keep themselves out of trouble?—They are rather a quiet and respectable people. They don't go in for "variance."

10224. The Chairman.—Is there any other aspect of the question, Mr. Courtney, that you would like to put before the Commission. We have tried to understand the situation of your district, which I know is very acute?—I think I have nothing further to say; and I thank you, Mr. Chairman, and ladies and gentlemen, for having heard me so courteously, and listened so attentively to the grievances of my district.

The Chairman.—We take an interest in what you say, because we have your description of the conditions of things in your district, and that is the kind of information we want to get.

The Commission then adjourned till the following morning to Newry.

TWENTY-THIRD DAY.—THURSDAY, 29TH FEBRUARY, 1912.

The Commissioners met at the Town Hall, Newry, at noon.

Present:—P. J. O'NEILL, Esq. (Chairman); LADY EVERARD; MISS MARGARET McNEILL, Sr STEWART WOODHOUSE, M.D.; GEORGE A. MOOREHEAD, Esq., F.R.C.S.; ALGER G. WILSON, Esq.; and J. R. CAMPBELL, Esq., B.Sc.

S. W. STRANGE, Esq., Secretary.

Mr. H. J. McCORVILLE, J.P., Chairman.

10225. The CHAIRMAN.—I understand, Mr. McCorville, you are Chairman of the Newry Urban Council?—Yes. Before giving evidence I wish, on behalf of the Urban Council, to extend to you and the other members of the Commission a very hearty welcome on your visit to this ancient Borough of Newry. I trust that the outcome of your proceedings will be of benefit to this district. I can only say that if you require anything to make you comfortable while here in the Urban Council premises, the officers will be at your service.

10226. Thank you very much, Mr. McCorville, for your kind welcome. I think we shall be very comfortable in this Board-room. With regard to the question into which we are inquiring, are there any special circumstances connected with the milk supply of the town to which you would desire to direct the attention of the Commission?—As far as I am concerned, I have very little knowledge of that at all. There are other members of the Urban Council who will give you evidence on that point.

10227. Are you resident in Newry?—Yes, all my life.

10228. To your knowledge, is there any difficulty in procuring a milk supply for the poorer classes, even those who have the money to buy?—I think there is not much difficulty for those who have money to buy milk in large quantities, but I think there would be a difficulty amongst the poor.

10229. We are mainly concerned with the interests of the poor?—Yes. My knowledge is that since the Dairies and Milkshops Order came into operation there are several purveyors of milk who have ceased selling milk.

10230. When you speak of purveyors, do you allude to people who retail milk in the town?—I mean people who keep dairies in the town and retail milk.

10231. Have these people to whom you have referred gone out of the trade altogether?—Yes, principally, as far as I can understand, because they could not see their way to carry out the Order. They feel that they have no title to their premises to justify them going to the expense.

10232. The capital expenditure which it would be necessary to make in order to carry out the provisions of the Order practically drove them out of the trade?—Yes.

10233. Because they feel that they have no title to their premises which would justify them in making the expenditure?—Yes.

10234. Has that led to a scarcity of milk in the town?—I think the poor are affected, because they could go to these small dairymen if they had not given up selling.

10235. The milk supply for Newry town, I take it, comes in from the country districts?—Most of it.

10236. And very little, if any, is produced in the town itself?—Not nearly as much as was produced five or six years ago.

10237. And you believe that is the direct result of the application of the Order?—Yes, and also, of course, to the price of feeding stuffs.

10238. Why should that affect them more adversely in the town than in the country?—In the first place, the dairymen in the town have to get grass outside the town, and they have to pay at least 2s. on some for grazing land, and country dairies produce their own feeding stuff.

10239. One class of dairymen is able to produce his own feeding stuffs and the town dairymen has to buy?—Yes.

10240. Are there many dairy proprietors resident in the town?—The number will be given to you by another witness.

10241. Do you know anything about the conditions under which milk is produced outside?—I do not.

10242. Do you make any provision for the inspection of the dairies in the town under the Order?—Yes.

10243. Have you an inspector appointed?—We have a dairy inspector and a veterinary inspector.

10244. Will either of these come before the Commission?—Mr. Mark, the veterinary inspector, who was appointed to give evidence, will be prevented from attending owing to professional engagements elsewhere, but he has left his written evidence.

10245. Has Mr. Mark an assistant?—I do not think so.

10246. Have you got a sanitary inspector?—Yes.

10247. Probably he might be able to give us some information?—He might.

10248. You do not know anything about the conditions under which the milk is raised, either in the town or in the country districts?—No.

10249. But you do believe that there is a scarcity of milk in the poorer districts of the town?—I do think so.

10250. Is it mainly consequent on inability to buy or difficulty to procure?—I think the difficulty is, perhaps, in buying.

10251. A monetary difficulty?—Yes. They have little money and they buy in small quantities, and the dairy people only send their carts round once a day.

10252. Factory hands and those engaged in the mill, would they be in a position to buy a reasonable quantity of milk for their children?—It all depends on how they are paid.

10253. Would their wages be sufficient to warrant them in paying a reasonable price for a reasonable quantity of milk for their children?—It all depends on the amount of their wages, as I said. There are lots of mothers working in the mills and the children are at home, and they are earning only 1s. or 10s. or 11s. in the week.

10254. But that would be only one item of income in the family—other members of the family would be earning?—Yes, in some cases, but in some cases a mother supports her children entirely.

10255. Have you any medical man resident in Newry who will give evidence before us?—Yes, Dr. Keen. He will be able to tell you whether the children get a sufficient quantity of milk.

10256. Dr. MOOREHEAD.—What is the usual price of milk?—I think that it is threepence and threepence-halfpenny a quart.

10257. That is all the year round?—It is cheaper from May to November.

10258. Are there people who cannot possibly get milk in the place?—I do not know.

10259. Do you know if there is much tuberculosis in the district?—I cannot say; the doctor will give you that evidence.

10260. Have you thought of any scheme with regard to supplying milk to the town?—No.

10261. Mr. WILSON.—What would the men folk be doing in the house you have described—what would the husband be doing where the wife is engaged in the factory?—The women would be widows; there are a great number of them in the town.

10262. So that 10s., 11s., or 12s. would be the whole income of a family?—Yes. Of course, there are cases where the husband would be a laborer on the quay; but that work is very scarce.

10263. Have the Council ever had trouble from an outbreak of disease from the milk supply?—I cannot say; there may have been some cases of suspicion. We had typhoid some time ago, but we could not trace what it was due to.

MISS MOLLIE BARCROFT examined.

10264. The CHAIRMAN.—I understand, Miss Barcroft, you are Secretary to the Committee responsible for the control of the Jubilee nurse in this district?—Yes.

10265. And I take it that your Committee from time to time receive reports from their nurse with regard to the condition in which she finds the infants?—Yes.

10266. Does the question of the milk supply ever crop up in these reports?—Yes, frequently, because we give relief milk.

10267. Have you any special scheme of distribution, or do you simply enable the nurse to buy milk in whatever district the necessity arises?—We have a Sanitation Order.

10268. Does the nurse buy the milk at a central depot or from the district in which it is needed?—In the district in which it is needed.

10269. Does she present reports with regard to the condition of the children that come under her observation, and the state of their health and development?—Yes, every week.

10270. Is reference ever made in these reports to the food on which these children are brought up?—There are verbal reports.

10271. How the nurse had reason to think and believe that the children are not properly fed?—Yes.

10272. And that shortage of a milk diet is responsible for the ailments that arise in consequence?—Yes.

10273. Does that condition prevail over the entire district in which the nurse discharges her duty?—Yes. There are two nurses; they divide the town between them.

10274. The services of the nurses do not extend outside the town?—No, except in urgent cases.

10275. Is the scarcity of milk due to the fact that it is difficult to procure, or because there is a difficulty to buy?—I think both causes combined. No doubt there is a scarcity, and, of course, we have very poor cows, where we find that the poor cannot afford to buy milk, and if others want to buy really good milk it is difficult to get it in certain districts in the town.

10276. Do you take any special precautions with regard to the milk you buy?—No.

10277. You simply procure the best you can find in the district in which the nurse is engaged?—Yes.

10278. Have you any special knowledge, Miss Barcroft, which would enable you to state the causes which led up to the scarcity?—I am a vendor of milk. We sell milk ourselves. The price of feeding stuffs and the wages have affected the price of milk, and we find a great difficulty about the men attending the cows.

10279. You think this has restricted the keeping of cows in the district?—Yes.

10280. Is that a growing evil?—I think so, so far as my knowledge from selling milk goes, because the demand is more than we can supply.

10281. Is the milk that you are interested in raised outside the town or inside?—Our house is in the Borough, and our cows are fed in the rural district.

10282. The milk is distributed through the town once or twice daily?—Twice daily.

10283. Are there many landowners engaged in sending in milk to Newry?—That I cannot answer.

10284. Is there a competition amongst those who are vending, and is there a reduction in the price consequent on the competition?—I do not think there is a great amount of competition, and I have not known anything about the price of milk to lead me to suppose that there was any competition.

10285. Has the price varied in recent years?—No, it is twopenny-halfpenny and threepence in the winter, except for the poor, and they pay up to fourpence a quart, because they buy in small quantities at the small shops. They are working in the mill, and they have to buy from small shopkeepers. They are engaged at the mills when the carts go round.

10286. The small shopkeepers buy wholesale from the milk producers?—Yes.

10287. The CHAIRMAN.—There is no special circumstance, Mr. McConville, to which you wish to direct the attention of the Commission?—No, sir.

10288. You are not brought into contact with people engaged in agriculture?—No.

10289. Have you any reason to think that the operation of the Dairies and Cowsheds Order has in any way limited the number of people engaged in the industry?—I have heard that it is so, but I have not come across it.

10290. It is one of the causes advanced, that influenced people who kept cows for the purpose of supplying the town to go out of the trade?—Yes.

10291. Are the provisions of the Order rigidly enforced in the district by the officers appointed by the Urban Council?—If they find any flagrant breach of the Order they would come down on the vendor.

10292. Have any prosecutions been undertaken?—I have not sufficient knowledge to say that.

10293. And in the industry in which you are engaged you have no reason to complain of the enforcement of the provisions of the Order?—No.

10294. You do not think they are too drastic?—No.

10295. And you believe that it would be in the interests of the consumers of milk that the provisions of the Order should be applied universally?—I do.

10296. In order to secure purity and cleanliness in the handling of the milk?—Yes.

10297. Has any outbreak of disease been traced to the milk supply of this district?—I only know of one case—that was a typhoid outbreak—but they could not put it down accurately to the milk.

10298. The milk was suspected?—Yes.

10299. What precautions were taken by the Public Health Authority to ascertain whether or not the suspicion was correct?—The place was examined.

10300. The people handling the milk were examined?—Yes.

10301. And nothing suspicious apparently was discovered in the examination?—No.

10302. Miss McNeill.—Who carried out the inspection?—There was a local inspection, and the medical officer of the Local Government Board came down.

10303. Lady EVANS.—Was the Widal test applied?—I cannot tell you.

10304. The CHAIRMAN.—Do you think that the health of the rising population of the district is seriously perjured by reason of the scarcity of milk?—Yes. I think there is a great deal of malnutrition and anaemia in children. They begin to drink tea, I am told, from three months old.

10305. That is an appalling condition?—Yes.

10306. Have you any knowledge of what quantity of milk would be taken into a family of, say, about six children, by their parents for domestic use?—From a pennyworth to a pint a day. They get as much as they can for a penny.

10307. Obviously the children would only have homogenized doses of milk with a supply of that character?—Quite so.

10308. Do you think there is a tendency towards a steady decline of the supply generally?—Yes, as far as I can make out there is.

10309. Have you thought of any scheme whereby it would be possible to improve the condition of things that exists?—In some way or other it would be well to help out the milk-vendors, because I do not think they can make a profitable living out of the trade. I think the local authority ought in some way to take the matter up. I think there is a certain quantity of milk produced in the town, but I do not think it is altogether the best, because I have been brought up to understand that this being genuine will the quality of the milk would be poor, and it would be of advantage if the municipality would in some way supply either milk to help the poor quality of the milk.

10310. You would suggest that the municipality should embark on municipal dairying, or in what way would you suggest that they should help?—I think if they had a depot or two in the town for the milk to come to, and someone inspecting it, and that the milk would be under the supervision of the authorities, who should add to the milk received whatever Jersey or other soft milk to improve the quality of it, that that would be a good thing. That would add greatly to the standard being kept up.

10311. You are rather inclined to apprehend that it would be difficult to produce on some of the pastures around the town a milk that would reach the legal standard of better fat?—Extremely difficult, I think.

10312. And you would suggest that some effort should be made to improve the general quality, by producing some of a higher standard, in order to bring up the poorer milk to the legal standard?—Yes.

10313. Do you think that would be a proper expenditure of local rates?—If the health of the nation is of vast importance, I think the municipality should be prepared to spend a certain amount of money.

10314. In your view that would be a wise and judicious expenditure—to devote some portion of the money raised locally to improve and increase the supply to the poorer people in the town?—Certainly it would.

10315. It is the duty of the local authority to make provision for stricken members of the community, and thus as a protective measure, in your opinion, would go to lessen the expenditure that it would be necessary to undertake under the existing law if an epidemic broke out?—Yes.

10316. And you have knowledge from your own observation that the children are not reared in a way that would indicate that they would become healthy members of the community in future?—Yes.

10317. Is there much fear of contamination in the way that milk is handled in the town?—I am afraid I am not qualified to offer an opinion on that.

10318. I rather take it from the evidence that you have given that the purveyors of milk situated in the poorer portions of the town would hardly keep the milk they get in conditions that would save it from contamination?—There are several things that might arise. If the milk is not stirred the people that get the first of it would get the fatty part, and the other part of the milk would be poor.

10319. The milk is also exposed to contamination?—Yes.

10320. And kept under conditions that are opposed to the principles of hygiene?—Yes.

10321. Is any effort made by the local authority, so far as you know, to induce these people to be careful of the manner in which they store their milk?—I cannot say.

10322. We shall get that from the inspector responsible for the carrying out of the Order?—Yes.

10323. Have you thought of any scheme whereby it would be possible to produce a richer milk by the introduction of new breeds of cattle or anything of that kind?—I think that might be done. There are two points of view. You have rich milk and less quantity, or poor milk and greater quantity, and the price of feeding stuffs being high, the tendency would be to produce greater quantity. If you raise the price the demand will be affected.

10324. Lady EVERARD.—Have you got any baby's club in Newry?—No, only a Father's nurse.

10325. Do you give free milk to the babies?—Yes.

10326. And you do not take any precautions, or the nurse does not take any precautions, to see that it is absolutely pure milk?—Nothing more than that she knows where it comes from.

10327. Does she have tests made as to quality from time to time?—No. It is so difficult to get the milk that she gets it wherever she can.

10328. Is condensed milk used?—I do not know.

10329. Or milk powder?—Not so far as I know.

10330. You find that the people attend to what the nurse tells them?—Yes.

10331. Is she able to instruct the people how they ought to keep their food in order to avoid contamination?—Yes.

10332. She does that?—Yes; I think she looks into all that.

10333. You said a great many children suffered from rickets?—Yes.

10334. To what do you attribute that?—To the bad food they get, that the mothers may not really be very strong themselves, and the children do not get the supply of milk they should.

10335. Do the mothers nurse their children as a rule?—Yes.

10336. Those that feed on the bottles, do they use the long tube?—We are instructing them against that.

10337. What is the retail price of milk in Newry?—We retail at twopenny-halfpenny a quart in the summer and threepenny a quart in the winter.

10338. The CHAIRMAN.—Have you as large a quantity available in the winter as in the summer?—We try to have.

10339. Dr. MOWBRAY.—Do you keep any milk records of the cows?—No, we do not.

10340. Do you think you can produce milk at three pence a quart to pay?—It might just pay.

10341. But there is an profit in it?—I do not think that there is any, so far as I have been able to judge, taking the feeding into account.

10342. Are the infants in the children whose mothers are employed in the mills?—Some of them may be.

10343. As far as you know, they make the best effort to breast-feed the children?—Yes.

10344. But they cannot devote sufficient time if they are at the mills?—No.

10345. Mr. WILSON.—We had evidence from Newry, and we heard of a similar enterprise in Cork, whereby the people related to the town in the same kind of way as yourself, came together—two or more of them came together—in order to establish a depot where the milk was handled in a proper room and sold at a reasonable price. What would be the prospect of such an enterprise in Newry?—One person could not do it.

10346. Are there other persons who might assist?—There might be others who might assist.

10347. It appears, in these two towns I have mentioned, to a large extent to have solved the problem of the security of milk amongst the poor population?—Yes, that might be so.

10348. At any rate the scheme has not been tried here?—No.

10349. Has there been any attempt to get up a depot of any kind, either municipally or under the Women's National Health Association?—No, I am sorry to say.

10350. Have you any figures to support your evidence as to the quality of the milk?—Do you mean of our own milk or other people's?

10351. Of any milk sold in Newry?—I have heard that the fat is poor.

10352. You are not supposing that water has been added?—No, but the difficulty of giving fatness propensities to the milk.

10353. You are not able to put in actual figures as to the exact proportion of cream you have found in the milk?—No.

10354. Does any milk come into Newry from the country districts?—No.

10355. Mr. CAMMELL.—Are there any creameries in this district or all?—There is one at Whitecross.

10356. How far is that away?—About two miles away.

10357. Too far to send separated milk here?—Yes.

10358. Do you think that there are persons between here and Whitecross who send in milk to Newry?—I should think so.

10359. The milk is there if people will buy?—There is no ordinary communication with Whitecross.

10360. Between here and there is it a good tillage district?—I do not know it is.

10361. Is there milk produced between here and Whitecross?—Yes.

10362. All the way?—That I cannot really say.

10363. You think, at any rate, that between here and there there is milk produced that might come to Newry if there was a better demand for it than at Whitecross?—Yes.

10364. You keep your own cows?—Yes.

10365. What do you feed them on at this time of the year?—Cotton cake, meal, bean and roots.

10366. Are they the average type of cow?—I fancy they are rather a different type. I think it is a better type than the ordinary country type.

10367. Do you make butter?—Yes.

10368. Do you find that the milk from your own yields less fat than is usually understood to be the average quality?—Yes; we keep Jerseys as well to make up the quality.

10369. Do you find it necessary to keep Jerseys?—Yes.

10370. How long have you kept Jerseys?—I should say about four years.

10371. And before that the milk was extremely poor?—It was.

10372. Did you ever test it?—I should think we did test it. We must have. It just came up to the standard, but no more.

10373. Is it a popular idea that the milk produced in Newry is poor?—Some is poor and some is not.

10074. Is it from what you heard that you say it is poor?—My own knowledge of the milk is that what was bought was poor. We bought milk before we kept our own cows.

10075. Poorer than when you got the Jerseys?—Yes.

10076. Suppose that you take the ordinary cows, and take them to any other district, would they not give poor milk also as compared with the Jerseys?—Yes, as compared with the Jerseys they would.

10077. You have never heard of any prosecutions in Newry for milk being poor—for selling milk deficient in fat?—I do not think so.

10078. And you have an officer taking samples occasionally?—I presume so.

10079. Mr. WILSON.—You are not in the Town Council yourself?—No.

10080. Mr. CAMPBELL.—Are you interested in goats?—No. We have only hearsay evidence about goats.

10081. Have you any experience of them at all?—Not personally.

10082. Do the poor people keep them as a rule?—Some do.

10083. But you are not able of your own knowledge to say whether they are good milkers?—No.

10084. Of good value?—No.

10085. Sir STEWART WOODHOUSE.—Do you think that the use of milk has diminished in Newry within the last few years?—I was trying to find out about that, but could not get any definite figures about it.

10086. It might be much the same as it was previously?—The number of people have declined who supplied the milk, and therefore one would suppose that there must be a restriction somewhere.

10087. Your names are doing educational work in improving on the poor the desirability of getting good milk?—Yes. They are trying to get milk used instead of other things.

10088. What other things?—You and porter, and things of that sort.

10089. Miss McNALL.—Is your name's report, has she given you an account of summer sickness amongst babies?—There is a good deal.

10090. Do you know if many of the infants die?—I do not know that the mortality is great.

10091. Would you approve of the long tube bottles being prohibited by law?—I know a case recently that came under my notice, where a child was ill, and they changed the bottle. It must have been contaminated.

10092. Would you approve of a legal prohibition against the use of the long tube bottle?—I do not see any reason why there should not be. I think education will soon get them to stop the long tube bottle.

10093. Can you tell anything of the class of shop that sells milk in small quantities. Do they sell other things—groceries?—Yes.

10094. With regard to the inspection of the dairies, from your own experience how often does that take place?—They have been to see our dairy.

10095. About how often?—That I really do not know.

10096. The CHAIRMAN.—Have you any difficulty in regard to those engaged in looking after the milk in your own premises—see they cleanly in their habits?—Yes. The younger generation understand the necessity for cleanliness better than the older generation.

10097. They had become accustomed to careless habits, and the difficulty was to root these out?—Yes.

10098. Is it men that are employed in connection with the dairies?—Yes.

10099. You think it needs constant supervision from the person responsible for the management of the place to keep the standard of cleanliness up to a certain efficiency?—I feel certain of it.

10100. I am afraid your experience is not different from that of other people?—No.

Mr. R. W. HENRY continued.

10101. The CHAIRMAN.—Are you a resident in the country or in the town of Newry?—In the country, at Jerripass.

10102. How far is that from Newry?—About three English miles.

10103. Are you interested in agriculture?—Yes, I follow it.

10104. And in the dairy industry?—Yes, I have been in it for the last sixteen years.

10105. Do you send any milk into Newry?—Yes.

10106. Has the demand for milk in your experience increased or diminished in the town?—In my experience it has considerably increased.

10107. Are you in Newry Rural District?—Yes, in Newry No. 2 District.

10108. Have they an Inspector appointed to look after the provisions of the Dairies and Cows and Order?—Yes, they have two inspectors.

10109. Have they a veterinary inspector?—Yes.

10110. Do the inspectors visit your premises?—Regularly.

10111. Have you any reason to complain of the conditions imposed by the Order?—None whatever. We appreciate them rather.

10112. You do not think they are unreasonable or drastic, or impose too much expense on those engaged in the milk trade?—No.

10113. What class of cow do you keep in your dairy?—The ordinary crossbred shorthorn cow.

10114. Is the land in your district of good quality?—Yes, we have no reason to complain, provided it is properly cultivated.

10115. Have you any difficulty in getting your milk up to the legal standard?—No.

10116. Do you give your cows artificial food when on grass?—Yes, with the exception of the month of June.

10117. And you find that you can keep the milk up to the standard by properly looking after your cows?—We find generally that you cannot feed quality into the milk unless you have a proper breed. No matter how you feed a cow that gives a poor quality of milk, you cannot make her give quality; you must have it in the blood of the cow.

10118. Is it a question of personal knowledge in the selection of the type of animal that is likely to be a

good dairy cow?—You can hardly tell except by testing. The Jersey cow, for instance, you will almost invariably get her to give rich milk.

10119. I am rather dealing with the ordinary commercial cow, that the cow-keeper may buy at the fair or market. Do you think any man possesses knowledge that would enable him to select a cow that would be likely to be a good dairy cow?—I do not think so. You get people who will, pardon me to know; but my experience is that, unless you get your cows tested, you cannot come to what you would call any sort of knowledge with regard to the quality of the milk that they would give.

10120. What practice do you follow—do you keep your cows year in year out, or only milk them for one period?—When we get a good cow we stick to her; but she is difficult to procure.

10121. Where do you buy your cows as a rule?—In the neighbouring fairs—Poyntestown, Dundalk, and other places round.

10122. Do you think the milk-producing quality of the cow has improved or deteriorated?—Fifteen years ago it was much easier to get a good milking cow than it is now.

10123. The milking qualities have deteriorated. What do you attribute that to?—The theory I hold is breeding from bulls of a non-milking strain. The great majority of the shorthorns are beef cattle.

10124. And you think that has proved detrimental to the milk production?—Yes.

10125. Do you ever breed the heifers you rear?—Well, I have bred a few. I bred a few every year, but I find it unsatisfactory by the ordinary commercial pure-bred shorthorn bull.

10126. You do not think he is an animal that breeds a progeny remarkable for milking qualities?—He is not.

10127. Can you suggest any other breed that would be likely to improve the milking quality?—I do not think we can get a better animal than the shorthorn, provided the milking qualities are looked after better.

10128. You think it is a question of selection?—Yes.

10129. And you think that the premium bulls ought to be selected with some record to prove that they came from a line that were profitable dairy animals?—Yes, it would meet the case.

10430. Do you think too much attention has been given to the question of conformation and size and appearance, to the exclusion of the milking properties of such animals?—I believe it has, because during these last fifteen or sixteen years all the best bulls of that description have been picked up for exportation to the Argentine, where they want an animal that will produce beef. They do not care whether they will give milk or not.

10431. You believe this fact has operated on the minds of the people who keep pure-bred herds of shorthorns, and that they ignore the milking properties to a very great extent?—Undoubtedly. I know a great many bands of pure-bred cows—gentlemen who keep from 50 to 80 pure-bred shorthorns—and you could not get five out of twenty that you could call good dairy cows. The others have gone out of shape entirely. Some of the cows would not rear their own calves. In fact, I get them myself, and I have found them most unsatisfactory and most unsuitable as dairy cattle.

10432. Do you keep milk records?—We do. We weigh our cows' milk once a week.

10433. What do you call a reasonable standard of milk yield in an ordinary cow for a period of twelve months?—From 700 gallons up. I would not like to keep a cow that would give less.

10434. You think a dairy cow that would yield less is not very profitable?—She is not.

10435. What is your heaviest yield?—1,300 gallons. I have tested a cow during the past twelve months and she gave 1,200 gallons.

10436. Mr. WILSON.—Is she one of your own breeding?—She is one that I purchased.

10437. Mr. CURRIE.—What bull was she got by?—I cannot say. I purchased her in the ordinary way, and the gentleman I got her from did not know anything about her breed.

10438. Dr. MOOREHEAD.—She is a young cow?—She is about seven years old, and not so much to look at.

10439. The CHAIRMAN.—Did you see a cow that you were buying a cow that was likely to prove very useful?—No, there was nothing in her appearance that would lead you to believe that she would be such a profitable animal. I thought she would be a cow that would give me about 800 gallons.

10440. Have you tested her milk for quality?—Only by churning.

10441. How does this cow compare with other cows that yield a lesser quantity?—I think cows yielding less quantity would give more butter according to the number of quarts of milk.

10442. Have you any reason to believe that this cow's milk, if tested alone in the ordinary way, would not reach the legal standard of butter fat?—I believe it would. She would give in full milk about $3\frac{1}{2}$ lbs. of butter in the day. She would give about 22 quarts of milk.

10443. Have you had her for long?—Two years.

10444. Have you had from her?—Yes.

10445. What sort of calves has she produced?—I cannot say that there is anything remarkable about the calves.

10446. Have you got them?—I have got a couple of them.

10447. Do you believe in the law of heredity in regard to milk production?—I do, sir, strongly.

10448. Have you ever had any trouble with tuberculosis among your cattle?—No, nothing of any consequence.

10449. No serious loss?—None, never. We have no right way of coming to a knowledge except by testing.

10450. Are your herd subjected to the tuberculin test?—No.

10451. Have you ever had reason to suspect that an animal of yours was suffering from tuberculosis?—Yes, in several instances.

10452. What action was taken in regard to these?—I got rid of them.

10453. Were they discovered by the veterinary inspector?—No.

10454. He has not directed your attention to these animals?—No.

10455. He apparently is not treacherous as an inspector?—There is no one, by looking at an animal, except the animal is very far gone, that would know anything was wrong except by applying the test.

10456. Do you believe in the test?—Yes.

10457. Have you tried it?—For pure-bred animals, I have.

10458. Have you proved that the result of the test was reliable at the post mortem examination?—Yes, in several instances.

10459. Have you ever found it to err?—No.

10460. We have been told that such things have happened?—I have never known of one. When the animals were killed there was generally a sign more or less. If a cow is suffering from a severe cold and tested I believe she would react, but if she is in good health and reacts I would be very suspicious.

10461. Would you consider it unreasonable to slaughter all reacting cows?—Well, it is a question I could hardly answer. If they would react I certainly think they should be isolated until they would be tested again.

10462. You think they should be under observation?—Yes.

10463. I am afraid if all reactors were slaughtered it would not help to increase the milk supply?—Certainly it would not.

10464. Have you ever seen the tuberculin test applied to a whole herd?—Not a dairy herd. As far as my experience goes, I would think that would be a very wise thing to be adopted—that is, to have all dairy cows put under test, and weed out every cow that was suspected. I believe that is the one way they will get rid of tuberculosis.

10465. Are milk records usually kept in your district?—No. I find it is exceptional.

10466. Would that not be instructive?—Yes.

10467. Do you not think the cow-keepers are rather working in the dark in the majority of instances—that they may have an idea that a certain cow, which gives a heavy yield of milk for two or three months, is a valuable dairy cow; but when they come to test her yield for the whole year they find she is otherwise?—Yes, that has occurred.

10468. And do you not think that the keeping of records is the only conclusive method by which cow-keepers can arrive at an accurate conclusion regarding the yield of their cows?—Yes, I believe it is the only satisfactory evidence that they have.

10469. Does the veterinary inspector ever make any examination of the cows with regard to their udders?—Yes, he examines all their udders every time he comes.

10470. And he has not complained to you that he had suspicions with regard to any of your stock?—Never.

10471. Is the price of milk increasing or diminishing?—This has been a disastrous winter for the dairymen. Foods were almost double in price.

10472. Has there been any increase in the price of milk in consequence of the increase in the cost of keeping cows?—Last August the price was up by a halfpenny a quart, but there has been no advance during the winter more than any other winter.

10473. Did that lead to any diminution in the demand?—No.

10474. The increased price did not lead to any diminution in the demand?—There was no diminution whatever.

10475. Have you any knowledge of the class of people who use your milk in the town?—We supply milk to some of the very best class of people in the town, and to the very poorest.

10476. What supply of milk would be taken in for a family consisting of six or seven persons—father, mother, and four or five children?—We are supplying small dairies in the town.

10477. You do not deliver in small quantities?—No.

10478. Is the price at which you sell to the purveyor less than the price at which you deliver to private customers?—Yes, a halfpenny a quart less.

10479. So that the purveyor has a profit on the sale of a halfpenny a quart?—Yes.

10480. Are they careful about the manner in which they keep the milk—those small shopkeepers?—Yes, and samples of their milk have been taken from time to time, and there never has been any complaint so far as I know.

10481. No prosecutions have been instituted?—No. There was one prosecution against one lady that resulted, but there was no conviction. It was found that she offered the inspector milk that came to that morning, and there had been a little drop left in the can that had been left over from the previous day, and

this woman admitted that she had skimmed whatever cream was on the top for herself and her family, and she told that to the inspector when he came in.

10482. It was felt that this woman made a bona fide statement and did not seek to mislead?—That is so; she did not seek to mislead.

10483. How many cows do you keep on an average?—Twenty or twenty-two.

10484. Are many farmers in your district engaged in the same sort of trade as you are round the town?—There are not so many as there used to be.

10485. To what do you attribute the limitation in the number?—It is one of the common businesses that a man can be engaged in.

10486. It is exciting?—It is very exciting.

10487. It needs constant supervision?—Yes, every day of the week.

10488. With regard to the help you employ, have you any difficulty in getting people to look after your cows for the seven days of the week?—We have a difficulty; there is no question about it.

10489. Is that an increasing or a diminishing difficulty?—It is greatly increasing.

10490. To what do you attribute that; is it the desire for enjoyment and freedom?—That is one of the things, but I think it is also due to the scarcity of labour.

10491. You have a scarcity of labour in your district?—Yes, it is very great at present.

10492. Is this growing?—It is growing very, very largely in our district. We have a lifting market in Newry every three months, and we find it is very difficult to get satisfactory hands, even by paying them almost double the wages that we did twenty years ago.

10493. Is it the custom to board the hands you employ?—Yes.

10494. All the hands engaged in the milk trade are kept as members of the household?—They are kept as members of our household. In our district there are many public works, and the labouring men go to those.

10495. They can get better wages, perhaps?—I do not think so, but they have more free time.

10496. Dr. Macneenan.—What wages do you pay?—From £10 to £11, and more, in the half year, with board and lodging.

10497. The CHAIRMAN.—Now, with regard to the personal habits of those engaged in the handling of the milk, is there any difficulty in keeping them up to the standard of cleanliness you would desire?—When we get a new hand we have to look after him for a little time. Sometimes they have been engaged in places where they were not so particular.

10498. Is any inspection made by the inspectors during the milking hours?—Very often. That is the time they are nearly always come.

10499. Do they pay particular attention to that provision of the Order compelling the owner to see that his employees are clean in their habits; that they milk with clean hands, and that their clothes are not in an objectionable condition?—They never have made any complaint. Our assistants have always been accustomed to wash their hands and the cows' udders before milking. That is a rule.

10500. That is a rule that you adopted of your own volition and independent of inspection?—Yes; before there was inspection we did that for our own sake.

10501. Is it a practice largely followed by those engaged in the trade?—I do not think it is largely enough followed.

10502. But you do not think it is an unreasonable condition to impose?—No.

10503. Has any outbreak of illness ever been traced to the milk supply in this town from an outside district?—None that ever has been traced directly to the milk supply. There was an outbreak last year, but it was not proved that it was due to the milk.

10504. It was a case of suspicion only?—Yes.

10505. Has any attempt ever been made by the Public Health Authority in Newry to make any inspection in the rural districts from which milk is supplied to the town?—Not unless by a veterinary surgeon.

10506. What I wanted to know is this—whether the urban authorities ever sought to make an independent inspection of any dairies in the rural districts for the purpose of ascertaining the conditions under which the milk is produced?—They do it at by their veterinary inspectors.

10507. Is he the veterinary inspector of the urban or rural districts?—The Newry urban. The laymen is for the rural district.

10508. The veterinary inspector is the officer of the Urban Council?—Yes.

10509. And he goes into your district and makes an inspection, and his authority is not questioned?—Yes, he goes to anyone supplying milk in the town.

10510. Mr. WILSON.—You do not resent that?—No, we welcome him.

10511. What distance are you from a creamery?—Five short miles.

10512. You never send milk there?—No, it would not pay any man to send milk there.

10513. I suppose there are men who do it?—If they do that, I have not the slightest hesitation in saying they do it at a loss.

10514. Lady EVERARD.—What is the price of milk at the creamery?—I think it is fourpence a gallon, and the skim milk is returned.

10515. The CHAIRMAN.—Do the creameries work in the winter?—Not continuously. I think they get very little to do in the winter.

10516. They only work a day or two in the week?—Yes.

10517. Do you keep up your supply in the winter as in the summer?—Yes.

10518. You never suffer any loss by reason of having a portion of your assignment coming back unsold?—No. We generally provide for that. We want some butter for our own family.

10519. Is it a difficulty of the trade that the demand is so unstable that a man may for five days have all his milk sold and the sixth day find some gallons returned unsold?—As a general rule, we do not complain of that. We generally know what our customers want. They may fall off a few gallons.

10520. If one wants less another might want more, and so it goes on itself largely?—Yes.

10521. Has the price of cows increased or diminished?—Increased considerably. For instance, a cow that we would buy for £20 fifteen years ago, we would have to pay £22 now for her.

10522. That is an enormous increase?—That has been my experience.

10523. And you are not talking of an exceptional time, but you are talking of the average price for twelve months—taking the summer and winter together?—Yes. You might get a cow a little cheaper in March and April, but once you come up to July again any decrease will be restored. If you want a really good cow you have to pay a fancy price.

10524. Do you think it economic to buy the best class of cow?—Yes, for the purpose I would require it.

10525. The animal that has proved so profitable, she was nothing special to look at?—No. She cost me about £17.

10526. Dr. Macneenan.—Would you describe her as the old Irish cow?—No. She is of the shorthorn type. I find if we can get a Jersey strain in our shorthorns that they are very profitable cows. If we can get a cow, for instance, with a black mouth or an orange skin. For a general purpose cow I find them to be about the best cow in the country—a cross between a good Jersey and a shorthorn.

10527. You would not have the first cross?—Yes, it is the first cross I would have.

10528. What type would she assume?—She would have a black nose generally, and something of the Jersey about her, but still be a bigger beast than the Jersey.

10529. You would not have the first cross?—Yes, it is the first cross I would have.

10530. What type would she assume?—She would have a black nose generally, and something of the Jersey about her, but still be a bigger beast than the Jersey.

10531. Predominating?—Yes.

10532. And you would like that better than one showing a larger infusion of the shorthorn blood?—If she was a cow with a good udder I would prefer one that would take after the shorthorn.

10533. Your own particular taste runs towards the shorthorn?—Yes.

10534. Is it a practice in this district to cross Jersey bulls with shorthorns?—There are few Jerseys around our neighbourhood. I generally keep a pure-bred shorthorn.

10535. What sort of animals would they make for beef?—The beefers would make fairly good beef, but I don't think they would make as good beef as the shorthorns.

10526. Would not the bullocks be of less value?—Yes. If you could get them all heifers it would be all right.

10527. You do think that it is the best type for milk production that you know of at the present time?—I would not say that. There is no one the best type, but as far as my experience goes I have seen these coming out very well, making general ability cows; nice, good udders, and in some cases out of ten rich and good milkers.

10528. Would they have the inherent quality of the Jersey in the richness of the milk?—That is what I have found.

10529. Lady EVERSLEY.—You say that the price of milk cows has gone up greatly?—Yes.

10530. When did the rise begin?—It has been going on generally for the last ten years.

10531. Are all the calves reared in this neighbourhood?—Yes, most of them are reared.

10532. Do you consider that the best milk cows are being exported out of the country?—Undoubtedly a large percentage go out of the country.

10533. I mean the well-bred in-milk heifers, do you find that they are leaving the country?—Undoubtedly they are.

10534. How many quarts of milk do you consider go to make a pound of butter?—About ten, on an average. I have found less, I have found eight and a half quarts. It would be rich milk.

10535. Do you ever test for fat and solids in the milk?—I have not a tester, but the test that I make is, I put the cows' milk morning and evening and churn it, and we get a very good idea of the quality of the milk in that way.

10536. Is there a shortage of milk amongst the labourers in your district?—Well, I cannot say that there is any reason to complain in our district. There are generally small cow-keepers who give labourers milk.

10537. The CHAIRMAN.—You don't sell to labourers?—No.

10538. Lady EVERSLEY.—Are there many Union cottages in your neighbourhood?—Only two at present, but a great many are in contemplation. We will have a great many more in a short time.

10539. Does the farmer give the labourer milk as part of his wages?—Some of them do.

10540. The CHAIRMAN.—There is no universal custom?—No.

10541. Lady EVERSLEY.—Would you approve of people engaged in the milking being subjected to the Widal test?—Do you know the test?—No.

10542. It is to find out if there is a typhoid carrier?—That has not been carried out in our neighbourhood.

10543. Of course, you know it is only milk that comes under the Order?—Yes.

10544. Would you approve of all the by-products of milk being put under the Order—butter, cheese, skim milk, and separated milk?—Yes. I think it is a silly thing that milk alone should be under the Order.

10545. The CHAIRMAN.—You would have no objection to licensing dairymen?—I think they ought to be licensed.

10546. Would you approve of it?—I certainly would.

10547. Dr. MOOREHEAD.—Do you have your cows tested with the tuberculin test?—No. I have never had them tested with the tuberculin test. It would be a very expensive thing for a man to do by himself. It would cost, say, £1 for each cow, and that would mean something serious.

10548. You never buy a cow that is certified?—If we were buying a valuable pure-bred cow or bull we would ask for a certificate. All our premium bulls are subjected to the tuberculin test.

10549. Do you have your cows milked in the same shed as that in which they are fed?—Yes, always.

10550. Do your men use overalls?—Yes.

10551. Do you skim the milk before you send it out?—Yes. I have followed that practice, but strange to say people in the town prefer the milk hot. For what reason I don't know, except they think that they get more cream. It will also quicker to the top.

10552. Do you give your cows hot food?—Never.

10553. Do you give them cracked corn?—Yes, and bran and meal.

10554. Lady EVERSLEY.—Do you ever try crabs?—No, we think it would taint the milk.

10555. You strain the milk before sending it out?—Yes, it is strained through a strainer, and also through a double muslin cloth.

10556. You have never used cotton wool in the straining?—No. We like to have the milk milked clean, so that there would be no sediment in it.

10557. Dr. MOOREHEAD.—How many rooms do you employ for your twenty-two cows?—Three constantly milking, and I always take a hand myself.

10558. What would you consider a paying price to produce milk at?—We would not consider that three-pence a quart this winter would pay. In fact, I would not consider another winter supplying milk at that price, having regard to the price of feeding stuffs.

10559. In a normal season would a milking a gallon pay?—Yes.

10560. You would not like to get less?—No. I would not undertake at any longer at less.

10561. Mr. WILSON.—How long have you been keeping records?—Three years now. We have some cows under the Departmental scheme.

10562. Are you working in conjunction with the Department?—Yes.

10563. Are you working with them as an individual or have you a cow-testing association?—I am working with them as an individual. We have no association.

10564. What is your opinion with regard to the prospects of forming such an association?—I think it would be a very good thing.

10565. Your neighbours, for example, must be taking a certain amount of interest in the records you keep?—I am surprised that they don't take an interest in this. I am very much surprised. I don't know why the people in the country don't seem to take the interest in it that they should.

10566. Is the Farnborough Farmers' Association in existence?—Yes.

10567. And are they familiar with what you are doing?—Yes, and some of them are taking up the scheme heartily. I don't think it will be long until we have a milk-testing association.

10568. There is not much expense under the Departmental scheme for the farmer?—No; only this 2s. 6d. a cow.

10569. The CHAIRMAN.—The entry fee?—Yes.

10570. Mr. WILSON.—What happens in your case?—We take the test once a week, and the inspector drops in any time and checks the records.

10571. Is the inspector from the county, or is he a wholesale man from the Department?—He is a wholesale man from the Department.

10572. He sees the quantity that each individual cow is giving, and checks that with the records you are keeping?—Yes.

10573. Do you actually keep it yourself with your own hands?—Yes. The inspector always takes a sample for analysis any time he comes.

10574. What method do you follow? do you take the calendar year from January to December, or the lactation period from one calving to another?—From one calving to another.

10575. Is the case of this 1,300 gallon cow?—Yes. She almost milked up to her time again. She milked for about forty-seven weeks.

10576. If you put that cow to a first-class shorthorn bull, and get a bull calf, would you not consider that bull calf would be a very desirable beast to give a premium to?—Yes, if his sire was of a milking strain.

10577. You would put more weight than is being done on a milking strain, not only of the premium bull, but of his sire again?—Yes.

10578. That would be difficult to get at present?—Yes, but if the Department would specialise in seeing that the pure-bred shorthorn bulls that they are sending out for premiums are of a milking strain.

10579. Have you ever gone into the question of the milk shield?—Yes, but I cannot think there was very much in it.

10580. Have you tried to compare the actual records that you have got with the shield appearance?—Yes, I have looked at it from that point of view, but I could not trace that there was very much connection.

10581. With regard to winter dairying, would you be strongly of opinion that without some system of cow-testing such as you are carrying out, the milk yield could not be very much improved?—That the cow-testing is successful?—It certainly is, but in a great many cases they don't feed their cows in the winter and let them go dry.

10582. You say you had some experience of cows that you suspected were tuberculous?—Yes.

10583. And you got rid of them?—Yes.

10024. Part of our duty will be to advise some method by which every possible animal of that kind will be got rid of?—I think State aid should come in there.

10025. What inducement would you hold out to the small farmer to come crying for the vet the first minute he suspected a cow of being ill?—If he could get partial compensation.

10026. I have heard it suggested that if a farmer goes to the local authority's vet. with a complaint that such and such an animal appears to be suspicious, he should get full compensation; but that if the vet. discovers the animal on his rounds, the animal should be slaughtered at the cost of the owner?—It would work out badly for the owner.

10027. There are very few of these animals apparently—the suspicious ones I am speaking of?—I think the reason that it is thought there are so very few of them is because people, as a general rule, don't want to cry out that they have tuberculous cows. They would like to keep it as quiet as they possibly could.

10028. We want to put a premium on those people coming to the vet. and telling him that they have an animal that they are suspicious about?—Until there is State aid they won't do it.

10029. Suppose the Government stepped in and said "we will give full compensation"?—I believe you would not have a tuberculous cow in five years in the country, or in seven years. It is worth of compensation that deters them.

10030. In your own case, what was it that made you suspicious?—If I see a cow coughing or getting dry in her coat I would begin to get suspicious, and get rid of her somehow, as best I could.

10031. You are going to breed from this 1,300 gallon cow and keep the better ones?

Mr. CAMPBELL.—What bull are you using to this cow now?—I am using a bull at the present time bred from one of those dairy cows.

10032. He is not pure-bred?—No. I would prefer a pure-bred, if I could get them with any sort of milk records. We have had one of these bulls in the neighbourhood—a bull bred by Mr. Hobbs, of England.

10033. What stock is that bull having?—Good stock. I have four heifers from him at present.

10034. Is the bull a good-looking bull?—Yes. He was sold. There was not sufficient public spirit in the country to keep him there; he is gone to Australia.

10035. He is not lost to the country?—No.

10036. How did you select the bull you are using?—The bull that I am using at the present time is a pure-bred, and I cannot give you any record of that pure-bred bull's milking strain. He was a bull I bought in Belfast, and crossed him with some of those good milking cows, and kept one of his progeny.

10037. Your present one is of your own breeding?—Yes.

10038. If you had not one of your own breeding, how would you proceed to get a bull of a milking strain?—Unless where you buy a non-pedigree bull—for instance, a bull that has been selected by the Department from some of those dairy cows.

10039. Supposing they were not there?—If they were not there then we would have to do the best we could.

10040. Mr. WILSON.—If they are not there it is the Department's fault?—Yes. The Department, I think, are not taking any steps up to the present, so far as I can see, to induce men to breed from a milking strain.

10041. Mr. CAMPBELL.—You have in your own case been connected with the Department scheme?—I can give you my experience. I got three bulls. I bred three bull calves from these cows and a pure-bred bull. I took them to Belfast last year and I only got commercial prices for them; they were not selected because they were not the stouter blocky type.

10042. What did you get for them?—£12 12s.

10043. They were not very good?—One was bred from another cow that had given me 1,300 gallons of milk in the year, and I weighed the milk and had it skinned several times during that time, and she gave me up to 2 lbs. and 2 ozs. of butter for one day's milk. That bull was rejected because he was a poll. I was asked why did I take the home of him.

10044. Did you show him as a short-horn?—No.

10045. What did you show him as?—He was shown as a bull bred from a registered dairy cow.

10046. Did you give in any name to him as a breed?—I just put him in as a bull from a cow under the Department's dairy scheme. I said that they should not have selected his dam as she was a "mool," or poll.

10047. Are there many of these "moos" in the district?—No.

10048. Would you be inclined to make them the foundation of a breed?—No. The dam of this cow was a pure white cow—a "mool"—a good dairy cow—a cross with a pure short-horn bull of the milking type, and she was a short-horn in every shape and form, except that she had no horns.

10049. The CHAIRMAN.—Had you any other calf that was approved of?—No, that year. The bulls that were selected were of the blocky, blocky, short-horn type. The milking strain of the dam never was taken into consideration in the selection of these bulls.

10050. They went in for conformation?—Yes.

10051. Mr. CAMPBELL.—Would you be in favour of rejecting conformation altogether?—No.

10052. What would you do?—I would try to get conformation together with work at the post. You cannot get a blocky beast, as a general rule, to be a good milker.

10053. The CHAIRMAN.—At that sale was any bull selected by the Department of this particular type?—Yes.

10054. What shape were they?—The blocky, short-horn type.

10055. It sometimes does happen that the conformation may come right, and that the animal also may be valuable from a milk-producing point of view?—It may happen.

10056. As a rule it won't?—No. The good dairy cow has a narrow front, and is wedge-shaped in appearance.

10057. Do you really think that it is almost essential that a good milking cow should be rather narrow in front?—Yes; that is to say, a good dairy cow should be narrow, wedge-shaped.

10058. I know that the idea does prevail largely, that they should be always of that particular conformation?—That is generally the shape of a good dairy cow, and they are rejected by the Department.

10059. Mr. CAMPBELL.—I think you are somewhat opposed to the Argentine trade?—No, because if I could breed bulls for the Argentine I would do so.

10060. The two interests are conflicting?—They are. They should be kept separate and distinct. A man that wants to breed this type of cattle should be subsidised, too, but I think the man that wants to breed dairy cattle should get some inducement, and the Department are offering some inducement at the present time.

10061. You would be in favour of giving a premium of the same value for the dairy cow as for the other?—I think so.

10062. If you were to give premiums on their milk records, and the milk record of those dams, you would get a large number of these by and by?—Yes.

10063. And you would have to reduce the money to let it go round?—For some time to come. If the Department would say, "unless you keep a record of your pure-bred cows we will not put their progeny on as premium bulls."

10064. You would fill the Argentine trade with a vengeance?—That trade is profitable for those who go in for it.

10065. Would you say they also indirectly benefit the store trade of the country?—Yes.

10066. If the value of the trade depended on the price they got for the Argentine, that would be very small?—It would.

10067. But they go to Scotland and elsewhere and buy valuable animals, and they benefit the store trade?—Yes, they have done that to a large extent.

10068. What premium would you be satisfied with for bulls that were put on purely on their milking records, paying very little attention to "blockiness"?—We would like bulls of a fairly good shape.

10069. You would not be satisfied with that by and by. You want their records?—Yes. In Argentina they keep these records and breed from these bulls, and I think they look for some shape about them, as well as for the milk.

10070. But not the beef shape?—Yes. Messrs. Hobbs and Son's beasts, while they don't come up to the standard of Argentine beasts, are yet a fairly good type of animal. They may be a little light in front, but yet I think the progeny would make good cows.

10642. That is only one, and what I am trying to get at is this—in a very few years there will be a very large number of bulls offered as a result of these cow-leasing associations, which are growing very rapidly. In five or six years they will be so numerous that if we are going to give them premiums on their milking qualities, and if we try and spend them all over the country, we will not have enough of money. There is only money to give a thousand premiums all round?—I think they would be satisfied with a £10 premium.

10643. Would they be satisfied with half the present premium?—That is £7 10s., and I don't think anyone would be satisfied with that, and comply with the Department's regulations.

10644. Do you find the records take a little time?—There is very little time or trouble, once you get into the way of it.

10645. What day of the week do you test?—Saturday suits us best these last twelve months.

10646. Do you know that there is an increased trade with Great Britain for the best milking cows in recent years?—Yes.

10647. Which corresponds exactly with the time that you began to get good cows?—Well, yes.

10648. And they take the very best cows?—They take the best they can get.

10649. Well, they are taking good cows?—There is no question of it; but I think that if our supply was kept up there would be as many better kept on of a good milking type to take the place of those.

10650. You rather indicated that they were fewer now, and that that was due to the bull?—I have kept my best heifer calves during the past ten years, and I found often my very best cows producing heifers that would rear their own calves. I attribute it to the bull.

10651. Yes, but have you not found it from your kind of a milking strain?—Not to the same degree.

10652. Have you found that the same bull gives you good milkers and bad milkers?—Yes.

10653. And will always do so as long as they are cross-bred?—Yes, until we get pedigree.

10654. Now, with regard to your records, don't you find this—don't you find that a cow that gives you 500 gallons this year may give you 800 or 900 gallons next year?—Yes, if you keep her on, but if you don't keep her on you don't know. A cow that will give 1,200 gallons this year you could not expect her to give it next year. I have tried this particular "mael" cow. She gave 1,200 gallons one year and the next year between 900 and 1,000 gallons, and she went down to 600 gallons, fed in the same way and fed well and calving about the same period.

10655. So that you must not put too much stress on the records?—No. If you get a cow with a nice udder, and compare her with the best shortbreds with an udder that is as big as your fist, you come to the conclusion that one is profitable to the farmer engaged in the milk trade and that the other is not. I know it is a very difficult thing to work out, this Department dairy scheme; but I think they are working on straight lines.

10656. Is not there a danger that people might put too much faith in the registers?—Perhaps they may, but we cannot get away from the fact that the shortbreds of the present day is not a milker.

10657. With regard to the milk supply for Newry, how many miles do you live from the town?—Three miles.

10658. Are there people further off than you sending milk into Newry?—No.

10659. Do you know of any of your neighbours sending milk to the White Cross Creamery?—No.

10660. What do your neighbours do?—They churn and sell the butter in Newry, and they also sell their buttermilk.

10661. What do they get for their buttermilk?—Sixpence or sevenpence a dozen quarts—about a halfpenny a quart—and they get threepence all the year round for the butter.

10662. Taking the buttermilk out of the account, are they getting more than if they were sending their milk to the creamery?—Yes.

10663. In other words, they get more for their butter than the creamery is getting for its butter?—No.

10664. Taking the buttermilk out of it, they are doing no better than the creamery?—I don't know that. Taking an average of threepence a pound, they would not get that from the creamery, and they are getting their buttermilk sold.

10665. It is the buttermilk that is paying them?—Perhaps it is.

10666. They are only getting twopenny a gallon for their buttermilk?—I cannot say, because I am not in that line.

10667. Is there a good demand for buttermilk in Newry?—Yes.

10668. And is it used round the countryside?—Yes.

10669. Lady EVERARD.—For what?—For baking and drinking.

10670. Sir STEWART WOOLACOTT.—You spoke of labourers in your neighbourhood getting milk supplies from small farmers who keep one or two cows?—Yes.

10671. I suppose the Order does not apply to these small farmers?—No.

10672. The CHAIRMAN.—They are not inspected?—No.

10673. Or registered?—No.

10674. Dr. MOOREHEAD.—In the fair that you attend do you notice the cows being milked?—They are not very often milked in the fair unless they are brought in as fresh calves, and when the cow is bought the purchaser will try to get some of the milk taken from her because she is stocked, which is an indigenous practice.

10675. What class of people milk these cows?—Sometimes the dealer's man or the man who buys the cow.

10676. Are they not milked into vessels?—Sometimes into vessels and sometimes on to the ground.

10677. You have often seen them milked into vessels by poor people?—Yes.

10678. And, of course, these people's condition is very undesirable?—They want a drop of milk, and they are not particular how they get it, and it is cheap.

10679. There is no supervision over that?—No.

10680. The CHAIRMAN.—What is the average record of your entire herd?—My average record for the last twelve months for twenty cows is almost 800 gallons.

10681. That is extremely good?—Yes, but I should say that the cows are, perhaps, fed better than the ordinary.

10682. You have not brought fresh calving cows into the herd and included their milk in it?—I generally buy a good springer when I get hold of her. There are three or four getting out of the herd every year.

10683. You eliminate the light milkers?—Yes.

10684. Eight hundred gallons is a very good record, is it not?—Yes.

10685. Mr. CHAMBERLAIN.—There are some good milking cows in the country still?—Yes. I am sorry to say that these cows are not of my breeding; they are bought in.

10686. The CHAIRMAN.—How many bulls that were offered out of the dairy herd were selected for premiums in Belfast?—Eight or ten.

10687. How did the premium bulls sell?—A few went for good prices—that is, a bull much of the shortbreds shape.

10688. Lady EVERARD.—What do you sell good prices?—One went to £15, and from that down to £5, according to the shape, but the premium, of course, put £10 on to the value.

Mr. JOHN McDONNELL examined.

10689. The CHAIRMAN.—I understand, Mr. McDermott, you have some evidence written out?—Yes, sir.

10690. It is mainly on insurance?—Yes.

10691. We would be glad if you read it for us, and then we shall ask you questions with regard to it?—Yes.

10692. Will the insurance scheme you contemplate be carried on by the creamery society?—Yes, and it

can be run either by a proprietary or co-operative creamery. I have about fourteen years' experience of the dairy business. During that time I notice the supply of milk getting less year by year. This decrease in the quantity is not due to any falling-off in the number of cows kept. I believe it is due to the degeneracy of the cows, so far as their milking qualities are concerned. This decline in the milking qualities

is mainly due to the introduction of the short-horn breed of cattle, and it is more or less encouraged, unintentionally, of course, by some of our agricultural shows. My reason for saying this is due to an incident that occurred about five years ago. A gentleman called on me and asked me to test two samples of milk which he had taken from two cows which he had entered for competition in the Dairy Class at the Newry Show, which was to be held in a few days afterwards. I tested the milk. One sample contained 2.5 per cent, and the other 2.8 per cent, of fat. I explained to him that both samples were very very poor, and he said he expected so much, and told me that neither of the cows would give as much milk as would feed her own calf. Still he hoped to carry off the first prize for the best dairy cow at the Show. I met the man at the Show. Things had turned out as he expected. He brought me to see his cows. He was awarded the 1st and 2nd prize. He said to me that that was one very good example of how our agricultural shows were helping forward the dairying industry of Ireland, and enabling our farmers to compete with the Danish, the Canadian, and all other competitors. Another prejudice which I believe has a very injurious effect on our milk supply is carried on in this locality, and I believe in a good many other parts of Ireland. When a farmer happens to have a really good cow, he says, "there is a good deal of money in her," and that he will dispose of her in order to get the big price out of her. She is purchased for a dairyman at some of the large cattle markets, such as Belfast or Liverpool. She is fat well and milked by this man, and at the end of the season she is turned out fat to the butcher. So the country is rid of this good cow and the breed of her, and there is nothing left in the country to breed from, only a very inferior class of cow of no particular breed, and these are crossed by our famous short-horn bulls. Together with getting the big money out of this cow, the farmer has another reason for disposing of her, viz., he imagines that because she is a really good milk cow she is more liable to take milk fever and other diseases, and that if she happens to die he has nothing to fall back on, and he can very badly put up with the loss. Hence the necessity for some cheap form of insurance, that will have the two-fold object of indemnifying the farmer against loss through the death of his cows, and, at the same time, encouraging a larger and better milk supply. I have given this matter a good deal of thought for the last five years, and as a result I drafted up a scheme for the insurance of milk cows, which I believe will remedy a good many of the defects both in our cows and in our system of dairying. It is hardly fair to give this scheme its present name, but for want of a better name I called it "A Milk Cow Insurance Scheme." It is intended to do far more than indemnify the farmer against loss through the death of his cows. The main objects are to improve and increase the milk supply, to encourage the farmer to raise and keep good milk cows, and to treat them so as to give the most milk possible. It will give the farmer a greater interest in his dairying business. It will enable the creamery to insist on a pure and better milk supply, and it will create a more friendly feeling between the existing creameries, whether co-operative, joint stock, or proprietary. If properly organized it will give whatever body takes it up a more popular control over the creameries than either of the two recognized bodies (the D.A.T.I. or the I.A.O.S.) have at the present time. **QUESTIONS.—**(1) It will indemnify the farmer against loss through the death of his cows at one-tenth of the cost that any insurance company in the United Kingdom will do it for, and it will do it in such a way that it is impossible for disputes or litigation to creep in. It is automatic in this respect. (2) The improvement in the milk supply. By valuing the cows for the purpose of compensation on the basis of the milk yield, you encourage the farmers to keep a better class of cow, feed it better, and in every way pay greater attention to his dairy cattle. (3) It will give the farmer a greater interest in his creamery, because by having a better supply of milk his creamery can be of greater benefit to him; and he will understand that if he leaves the creamery for any trivial matter he will forfeit his claim on the insurance. (4) It will enable the creamery to insist on a pure milk supply. The farmer will send cleaner milk, knowing that if it is rejected for a number of times it will reduce the amount of his cheque on payday, and reduce the amount of compensation he will be entitled to on the death of any of his cows, and

that no other creamery will accept the milk without written authority from the creamery he is leaving, and a permit from the existing insurance body. (5) It will create a friendly feeling between neighbouring creameries, whether co-operative or proprietary, because it will stamp out what is known as over-cowping. The farmer cannot change from one creamery to another at will. The possibility of forfeiting his insurance is enough to deter him from this, and in addition the creamery he applies to cannot admit him without written authority from the creamery he is leaving, and from the central authority. In this way a working agreement or connection is made between all the creameries, whether co-operative or proprietary, that may join in the scheme. Thus one vital mistake made by the promoters of joint efforts in dairying in Ireland will be remedied. It will give the central or covering body control over the creameries that will not be resented by the farmers, because the farmer will then feel that he is deriving some benefit from the central body. That is what I have to state so far as the scheme is concerned. The next thing is to consider it from the financial point of view.

10083. You are going to deal with figures?—Yes. Perhaps you would have some questions to ask.

10084. You contemplate that the governing bodies that would put this insurance scheme into operation are the creameries themselves?—Yes.

10085. And you would not embrace in the insurance scheme any cows except cows that were yielding milk for the creamery?—Yes.

10086. Are you identified with the creamery management yourself?—Yes, I am the manager of the Whitecross Creamery.

10087. Have you any experience of the production of milk?—No. I know the supply is smaller. The farmers tell me that no matter how they feed their cow, she will not give as much milk as cows gave years ago, and they attribute that to the short-horn.

10088. How long are you connected with the Whitecross Creamery?—I have been engaged there for fourteen years.

10089. You are of opinion that the yield has diminished, though the number of cows is the same?—Yes.

10090. Have you any reason to complain of the condition in which the milk is sent to your creamery?—No, but there could be an improvement.

10091. From what area does your creamery get its supply?—There are three authorities. It would mean at times from the centre of about nine miles.

10092. All in the Co. Armagh?—Yes.

10093. Mr. McDONNELL.—A radius of nine miles?—On the Newry side it would be less than nine miles.

10094. Do you supply new milk from your creamery?—Yes, we send milk to Belfast.

10095. All the year round?—In the winter months only. Last November was the first time I started it.

10096. Has any complaint ever been made by the Public Health Authority of Belfast as to the condition of the milk sent in by your company?—No. It is always pasteurized, and we always see that the cans are thoroughly cleaned.

10097. Is that your exclusive trade in the winter?—No.

10098. Do you make butter as well?—Yes.

10099. Is winter dairying carried out in that district?—No. Our supply is always small in the winter time. It is not sufficient for creamery purposes.

10100. Is the winter supply an increasing or a diminishing quantity?—It is a diminishing quantity.

10101. What do you attribute that to?—Some of the farmers complain that no matter how they feed their cows they will not give a good supply.

10102. What is your average winter price for the farmer?—Fourpence-halfpenny for the fat contained in a gallon of milk.

10103. Mr. McDONNELL.—In the summer what is the average price?—About threepence-halfpenny.

10104. The Chairman.—Is the milk graded in any way?—It is tested and paid for in proportion to the fat contained. We have three authorities working in connection with the centre. I have a pasteurizing plant at all my factories.

10105. You do no trade in the summer season with Belfast?—No, we have only trade on the new milk trade with Belfast since the 1st of November last.

10106. Is fourpence-halfpenny the best result you can get from butter-making?—Yes, at the present time,

with a small supply of milk, you cannot pay more. When our supply was larger ten years ago the average price was fivepence.

10717. How far do you believe the food supply to the cows influences the quality of the milk?—I don't think it influences it at all.

10718. And that the power of giving rich milk is inherent in the animal?—Yes. If you allow a cow out on after-grass and clover, the quality of the milk is improved by at least one per cent.

10719. Mr. CHURCHMAN.—Does she come back again in a week?—Yes.

10720. The CHAIRMAN.—Would she come back on the same feeding?—No.

10721. Why do you instance clover?—It is not good feeding for butter fat, but it increases the quantity of the milk.

10722. Do you think that clover is the least valuable of green foods for producing butter fat?—Yes.

10723. And the after-grass of old pasture is not so harmful?—It is not.

10724. Are the cows in your creamery district well and scientifically fed?—They are very well fed.

10725. And well looked after?—Yes.

10726. And the milk supply sent in gives evidence of care in handling, so far as cleanliness is concerned?—It is retained if it is not all right.

10727. Have you to return it often?—No.

10728. It is known that the supervision is strict, and consequent on that is extra care taken?—Yes. Our creamery suffers badly from the Cowshed Order. We believe that the Order is a really good Order, but that, as it is administered in this Union, it is retarding, rather than promoting, the object for which it was passed. It is sending back farmers from the creamery system to the old system, whereby they can make butter in any condition. I know farmers in our district who keep from six to twelve cows. They churn milk at home and sell in Newry, and they also sell the buttermilk. The Order says "a cowkeeper, dairymen, or purveyor of milk." Our local authority say that they don't come in under the Order.

10729. If the Order is not drawn to embrace them you think it should be?—Yes, it should apply to all cowkeepers.

10730. Even although they may not vend the milk at all?—Yes.

10731. Do you retail milk in the creamery?—Any time we were ever applied to for milk we sold it.

10732. Even in small quantities?—Even halfpenny-neths.

10733. Your principle is that you should not deprive the poorer people of an important article of diet simply because they can only afford to buy a small quantity?—We would be only too pleased to supply any quantity, no matter how small.

10734. Does that apply to creameries generally in the North?—I have no experience about other creameries.

10735. Have you learned from other managers whether the custom prevails?—I saw other creameries where people get buttermilk or skum milk, but I don't think any creamery would object to sell milk.

10736. Your creamery and sundries sell the milk?—Yes.

10737. And is the separated milk always returned to the person sending in the pure milk?—Yes.

10738. You do not sell it separately?—No.

10739. There is no demand for it locally?—Yes. They rear all their calves and pigs on skum milk.

10740. Do they supply the deficiency in butter fat by other foods?—Yes, indeed.

10741. What effect has that on the store stock of the country?—It is improved?—The farmers say that they can get as good prices for calves fed on separated milk and dressed as other farmers who feed them on pure milk.

10742. At what age do they sell the calves?—From fifteen to eighteen months old.

10743. Where do you send your butter?—I send it to Edinburgh and Belfast, Liverpool, Glasgow, and to Inverness and Aberdeen.

10744. Have you a constant trade with merchants there?—In Edinburgh I have, when I can supply it.

10745. Would you get a better price for your butter if you had a constant supply for twelve months?—Yes, I think I could increase the price. That is what this insurance scheme is intended for—to increase the supply and improve the quality of the cows.

10746. Are they the ordinary short-horn cross-bred cows that are kept in your district?—I don't believe they are of any particular type.

10747. You have not got the milk of any Jersey?—No.

10748. Or shorthorn herd?—No.

10749. It would not yield much return at a creamery price?—No.

10750. Mr. WILSON.—Is the scheme that you referred to in action?—It is at present in operation at White cross.

10751. Because the leaflet you sent us is dated the 10th of January, 1913?—Since then it has been put into operation.

10752. And you will describe how it is working. Last June twelvemonths it came in operation?—Yes.

10753. With regard to the selling of milk by the creamery, we have had evidence that in certain creameries throughout the country the committee is charge refused to sell the milk?—I don't think any creamery would do the like of that.

10754. It was a lady who told us that, and she could not give the reason. Would you see any serious difficulty in making it obligatory on the creamery to sell milk when asked?—I would see no difficulty at all. I would be only too anxious if we could get a sale. If we could get a market for sweet milk we would not make butter.

10755. It would give you a higher return than the price you would get of butter?—Yes.

10756. Have you sold milk in Newry?—Yes.

10757. Has it occurred to you or to your committee to do so?—At the start of the society we tried to sell pasteurised milk in Newry, but it was new to the people. They did not care about the taste of the pasteurised milk, and besides we could not do the pasteurising at the time. We can do it now.

10758. Why I ask is because it has occurred to many of us in going around, why, with a large price which is obtainable for milk in the city areas, the creameries don't supply milk to the city rather than make butter?—We would be very anxious to do that. The railway companies charge high rates. I would not complain so much of the rates as of the way they handle the cans. You must have a very large supply of cans in order to carry so a city milk trade.

10759. They get damaged?—Yes. If we added the price of the cans to the charge per gallon for the transit of the milk it would send up the expenses high. If the railway companies would offer better facilities and would take greater care of the cans there would be no difficulty in the creameries sending on milk to the cities.

10760. Have you any idea at all what is the average yield of milk per cow among your clients?—About 400 gallons, roughly.

10761. The CHAIRMAN.—That is an estimate of the quantity supplied?—Yes.

10762. Mr. WILSON.—There would be deductions from that for the farmer's own use?—400 gallons is what the farmer would supply to the creamery, and I don't believe the average cow would give more than 400 gallons.

10763. We had evidence to-day from Fermont that the average yield of a herd was 800 gallons?—The man who stated that did not measure or weigh it.

10764. He did?—That would not represent the average of a locality.

10765. It was the average of his cows?—The average cow would not give more than 400 gallons.

10766. The CHAIRMAN.—He had a cow that gave 1,500 gallons?—He is a very lucky man.

10767. He was a man who took every possible care of his cows, and fed them on artificial feeding for eleven months. Does that custom prevail in your district?—No.

10768. Mr. WILSON.—On the basis of 400 gallons on the average, or 500 gallons, there must be an amazingly small margin of profit?—I believe several farmers are losing money. They pay no attention at all to the selection of the cows.

10769. In your opinion, if it were possible to increase the milk yield by 25 or 30 per cent. the expense of production would not increase in proportion obviously, and it would leave a handsome margin of profit?—Yes.

10770. And that would bring one to the principle of keeping milk records?—Yes.

10771. Has anything been done in your district in that respect?—No, but this scheme will have that

affect so far as the herd is concerned. By introducing this scheme you will give the farmer a two-fold object.

10772. All that we have learned about the Cow-testing Association is that it will get at the individual cow?—By introducing this scheme you will give the farmer a two-fold object. He will try to weed out his bad cows and replace them by good milkers, so that indirectly it will have the effect of the Cow-testing Association.

10773. Mr. CAMERON.—What is the best of your milk in summer?—The average would be about 3.5 per cent. of fat.

10774. Is the country there which you draw your milk very poor land?—No. It is not very rich pasture either. It is about average land.

10775. Have you noticed any difference between the quality of milk from poor mountain farms and well managed low land farms?—We get the milk from the low lands and the mountains, and I notice that the milk from the mountain is richer. I noticed that the mountain milk showed a very high percentage of fat, and I got it tested.

10776. The CHAIRMAN.—What did it make?—That was in October, and I think it tested over 4 per cent.

10777. Is not that the highest time?—It is richer in October and November than any other time of the year.

10778. Mr. CAMERON.—Is there a popular opinion here that the land is so poor that it will not produce cow milk?—I think it is more in the quality of the cow than of the land.

10779. You have not held that opinion expressed?—No.

10780. Is your land granite land?—No.

10781. You say you have sold milk to persons in pennyworths?—Yes, but it is seldom it is asked.

10782. Would you be prepared to do it?—Yes.

10783. If the people came drifting in all the morning?—I would arrange that.

10784. It would interfere with your management if the people came in that way?—No. We could put a can of milk aside and let one of the attendants attend to it. They come that way for buttermilk and we don't find it any inconvenient.

10785. Do they come for it at different times of the day?—Yes.

10786. Do you think a cessary is a suitable place for retailing milk?—I don't think so.

10787. To whom do you retail it?—See they farm labourers?—Yes.

10788. Are these farm labourers from the farms where the milk comes from?—No, they are not. They are some milk workers and road men.

10789. Do the farmers supply their labourers with milk so far as you know?—Yes.

10790. Have you any Union cottages in your district?—Yes.

10791. Who supplies the occupants of those with milk?—A neighbouring farmer.

10792. Does the farmer who supplies them send milk to the cessary as well?—Yes.

10793. Are you aware that that is the case?—I am.

10794. You think that is pretty general?—It is. Any farmer would not object to sell milk if he got paid for it. They would rather sell it to a labourer at a penny a pint than send it to the cessary.

10795. There is never a cessary in your district for domestic purposes?—No. It is never reduced to famine.

10796. The labourers get sufficient you think?—Yes.

10797. And the farmer's family?—I believe they get any amount of it.

10798. There is no talk about the poorer people not getting sufficient milk?—No; it is never reduced that low.

10799. From how near to Newry do you draw your milk supply?—About 34 miles.

10800. Do you mean to say that they would bring their milk to you for 54d. and 6d. when they would get a better price in Newry?—They would not get as for all the milk in Newry. They might get as for it in the winter.

10801. What do they get in Newry?—I think it is never less than 3d. a gallon.

10802. Do you think it would pay a man to buy milk and send it to Newry, instead of the Newry men trying to produce it?—Yes. If I could get a Newry man to take milk from me at 5d. a gallon I would be well satisfied. I am supplying Belfast at 5d. a gallon, and it costs us a penny to send it there.

10803. Do your books show that the supply of milk is going down?—Yes.

10804. Do they show that the supply of butter is going down?—For the last two years we have lost customers on account of the Dairies Order.

10805. The quantity of milk, you say, is going down?—Yes.

10806. Do you think that is the case all over Ireland?—Yes.

10807. So you would put the decrease in the export of butter to the reduction in the milk supply?—Yes, that the cows are not milking so well.

10808. And you say that no matter how the farmers feed them, they will not give a large quantity of milk?—That is so, compared with ten or fifteen years ago.

10809. What experience have you of ten or fifteen years ago?—I have heard the farmers complain.

10810. And they attribute the decrease in the yield of milk to what?—The introduction of the shorthorn bull.

10811. What bulls do they use?—Whatever bull is cheapest and nearest.

10812. Would that be the shorthorn?—There are lots of them about the country.

10813. Would it be the cheapest bull?—As a rule, they only charge 2s. or 2s. 6d., except for a bull that is on the Department's premium, and I think they charge 5s. for him.

10814. Is could not be the premium bulls that are at fault, but the other bulls?—No, it is the breed of the premium bulls that is at fault.

10815. You cannot get any bull that is not a progeny of these premium bulls?—Hardly.

10816. Do you look for them?—I went up to the trouble and expense of getting a bull from the West of Ireland that belonged to the old Irish breed of cattle.

10817. What is he like?—He is only fourteen months old. He has the appearance of coming out a very good bull. He may be a nice bull, and he is well shaped, but his colour is not so good. He is from a good milking strain of cattle from the old Irish breed.

10818. Mr. McDermott.—What is his colour?—Black. He has a dark streak through his head. He is a kind of brindle and they call him a "brandy" from his colour.

10819. Mr. CAMERON.—An old Irish breed?—Yes, but the people don't care for him on account of his colour.

10820. Mr. WILSON.—Was it you or your society bought it?—Myself personally. The dam is a good milker. She is brindle also.

10821. Mr. CAMERON.—Has she horns?—Yes.

10822. The CHAIRMAN.—From what part of the West did you get the bull?—County Wick.

10823. Dr. MOSENFELDER.—To what temperature do you heat milk in your cessaries?—165 to 170 degrees.

10824. The CHAIRMAN.—You spoke of some of your chemists failing off on account of the Order?—Yes.

10825. Do you find any change in the milk supplied to you since the Order came out?—No. We always insisted on clean milk, and if they send dirty cans I would return the milk or write to them about it.

10826. So you think you had accomplished what the Order aimed at previous to the introduction of the Order?—Yes.

10827. Dr. MOSENFELDER.—You have a regular pasteurizing plant?—Not for our cessary, but we have for the whole milk. We can heat the whole milk up to 195 degrees.

10828. The separated milk is not treated at all?—No, but even if milk sent to a cessary is not heated up to pasteurizing point it is purified. The separator is one of the best filters you can use for milk.

10829. The CHAIRMAN.—Your main objection to the Order is that it does not apply to all milk products as well as to new milk?—Yes, because it does not apply to every cowkeeper.

10830. Mr. W. M. Bell, Clerk of the Newry Union.—Would you permit me, Mr. Chairman, to ask through you a question of the witness? I am hon. secretary to the Newry Show. The witness has made a statement that is not correct. Perhaps you would permit me to ask him one or two questions.

The CHAIRMAN.—I would prefer you put them on paper and I will try and elicit the information you require from the witness.

Mr. Bell.—I will do so.

10831. The CHAIRMAN.—Will you kindly go on, Mr. McDermott, with your insurance address?—Yes.

10832. We would be glad to hear what you have to say in reference to the financial part of it?—I would

leave out the marketable value of the cow and value her on the quantity of milk she gave. My system would be to deduct 5d. on the £ from the value of the farmer's milk. That is 2½ per cent., and it will cover 2 per cent. mortality in cattle. We have no statistics in the United Kingdom giving the mortality in cattle, but we have statistics supplied to the Department in 1910 from Germany. They were taken from 123 estates in Germany for a period of four years, from 1905 to 1907, and the mortality was shown to be 1·13. In France for the same period the mortality was 1·39, so that the figure that I have given will cover a 2 per cent. mortality and leave as a fairly large balance to pay for covering insurance. The charge that I have fixed would work out at about 3s. 2d. a cow in the year. That would insure a cow value for £12 and would draw the former compensation for 28 9s. 8d. If the farmer can increase his supply of milk, his price at the creamery will be increased, the amount for each cow will be increased, and the amount of premium is also increased in proportion. If he increases the supply of milk, he increases the receipts from his milk, the amount from each cow; the amount paid into insurance fund is increased and the amount of compensation is increased. Say that a society has about 2,000 cows, their dealings for the first year would work out like this. For the first year the farmers would derive no benefit.

1988. You are modelling your scheme on the Chamberlain of the Bacheque's scheme?—If it were made compulsory, I believe it would do more benefit than the Lloyd George scheme. Say a society has 2,000 cows, the figures will work out at 3s. 2d. a cow. The total revenue would be £200 13s. 4d. On the other side, we would pay to the governing insurance company £1 11s. 6d. for 5 per cent. of revenue to cen-

tral body, £15 16s., leaving £299 17s. 4d. balance of cash in hands, and the second year's working would be,—to balance on hands from previous year, £299 17s. 4d.; revenue of 2,000 at 3s. 2d., £216 13s. 4d.; interest on reserve at 4 per cent., £12; price of forty hides at 17s. 6d. each, £28; total, £665 10s. 8d. On the other side we would have—affiliation fee to central body, £1; 5 per cent. of revenue as covering insurance, £15 16s.; price paid for forty cows at £8 9s. 8d., £299 6s. 8d.; balance cash on hands, £297 10s. 8d. That a man has six cows whose milk he sends to the creamery, and that he receives £26 for the season; that is 45 per cow. We look on each of his cows to be value for £12. He is given two-thirds of that sum. The whole thing is automatic.

1989. The price is assessed automatically?—Yes; there could be no room for dispute. At the end of the second year we have £297 10s. balance cash in hands, so that we have increased our reserve the second year from £299 17s. 4d. to £297 10s. 8d.—that would be about £8. A federation or covering body can be formed by a number of creameries (say, 100) joining together and paying 5 per cent. of their revenue, together with £1 as affiliation fee, into a common fund, the governing body to be managed by a Committee elected by the creameries and worked in conjunction with either the D.A.T.I. or the L.A.O.S.; the covering body to set £1 affiliation fee and, say, 10 per cent. of the £15 16s. to pay management expenses, the balance of the £15 16s. to go into a common fund to assist societies having a death-rate exceeding 2 per cent., or exceeding whatever percentage their estimate provides for, the covering body to limit this liability to, say, one-half per cent. or to whatever the funds will permit. This is the balance sheet or cash account of the covering body with 100 creameries for the first year.

Dr.	£	s.	d.
To affiliation fees,	100	0	0
„ 5 per cent. of revenue, 200 Creameries,	1,200	0	0
	£1,300	0	0

Second Year.

Dr.	£	s.	d.
To Cash on hands,	1,422	10	0
„ Affiliation fees,	100	0	0
„ Interest on reserve at 5 per cent.,	35	11	3
„ 5 per cent. of revenue from 100 creameries,	1,200	0	0
	£3,158	1	3

Cr.	£	s.	d.
By Expenses, being affiliation fee and 10 per cent. of payments of Covering Society,	297	10	0
„ Balance of cash in hands,	1,422	10	0
	£3,158	0	0

Each of the creameries assisted should be compelled to provide for, say, a half per cent. higher death-rate in the following year. This will increase the payments to the Governing Body and minimise their risk.

1989. Have all the contributors to your creamery agreed to this scheme?—No. Only twenty-five joined, because I got no person but myself to organize it. Being the first to introduce the scheme, they were suspicious, and they thought I wanted to make something out of it myself, and they wanted to watch until they saw it working. We worked it for a year and a half with twenty-five members, representing 125 cows, and we have at the present time £11 1s. 11d. on hands after we paid for two cows that were lost.

1990. Mr. WILSON.—You enforced the clause about getting nothing the first year?—Yes.

1991. Mr. CAMPBELL.—Do you know of any other creamery that has taken this up?—No. It was talked about by other creameries.

1992. Have you tried the Irish Agricultural Organization Society to take this up?—Yes, but they had a scheme of their own, and they are working it for the last two years and they have not a single society organized yet. I have made no provision in this only what would pay for the cow. I have left nothing for salaries. I did not think there was sufficient money in it for any outside body to take up. Then again, it was a new thing.

1993. If you should hit on a bad year and there was an epidemic, you would be wiped out?—No insurance company will bind themselves for anything exceeding 4 per cent. Any year we would be able to meet four

per cent. Our charges will cover more than 2 per cent. mortality in the first year, and the second year we charge 2 per cent. mortality again. We would then have two years' income.

1994. The CHAIRMAN.—Is there much loss experienced in your locality by tuberculous cows?—I have heard of only one. She was condemned by the veterinary inspector and the police were watching her for three or four days and she disappeared; but I do not believe the owner did away with her.

1995. You have not heard of any complaint of any serious financial loss consequent on the presence of tuberculous amongst the cows?—No.

1996. And you have not heard of any animal being condemned to slaughter by the veterinary inspector?—No, except this one that I mentioned. I do not know what became of her.

1997. Is milk fever at all prevalent in the district?—Yes.

1998. It is not a common malady?—Yes. The malady has been greatly reduced during the last few years.

1999. Is it customary for cowkeepers in case of this disease to secure a veterinary surgeon?—Yes.

1990. The question that Mr. Bell wanted to ask was this—"With regard to the cows that you said had been awarded first and second prize at the Newry Show, were they pure bred shorthorn cows, or were they common dairy cows?"—They were in the Dairy Class. I think Mr. Broome was the name of the man. He got the milk tested about three days before the show, and he told me he had the cows entered for competition in the Dairy Class. On the day

of the Show, he asked me to see his cows, and stated that he had got first and second prizes, and he said, "that is what the Shows are doing to improve the milk quality of the cows in Ireland." He said he never saw such bonifides.

10647. These were animals of the Stud Book confirmation? They were secure, big, well-ordered cows to look at and had all the appearance of milk, and he told me that they had a very small yield and that the quality was poor.

10648. The CHAIRMAN (to Mr. Bell).—That is all you wanted to know, Mr. Bell?

Mr. Bell.—In my opinion, Mr. McDermott's statement is most inaccurate. I am confirmed in that opinion by my colleague, Mr. Small, who was Secretary to the Agricultural Show for years. No specimen of the name of Emerson had exhibited in the Dairy Class. Witness.—I said I think the name was Emerson.*

Mr. Bell.—Both of the cows that got prizes had a record of 1,000 gallons.

10649. The CHAIRMAN (to Witness).—Was it last year this occurred?—It is about three or four years ago. I am only stating what occurred. He asked me to test the milk. He told me he had got first and second prizes in the Dairy Class, and he said he never saw such a fraud in his life.

Mr. Bell.—If you will permit me, Mr. Chairman, to write to you, I will look up the record of the Show for twelve years. I am absolutely certain that Mr. McDermott is wrong.

A statement of that kind is a discredit on the Show, because it is one of the classes that we have been most anxious to improve. We have spent a great deal of time and money in improving that class.

Witness.—There is nothing further from my mind than to discredit what the Show is doing, because I think Mr. Bell cannot deny that I did all I could myself to assist it.

Mr. Bell.—No doubt.

Witness.—And to encourage the milk supply, I offered a gold medal, so I do not want to discredit the Show.

10650 The CHAIRMAN (to Witness).—What you wanted to convey, as I understand, was that a certain type of animal, which is sometimes successful as a prize winner at any show, is not necessarily a very profitable animal to keep from the dairymen's point of view?—That is what I wanted to convey.

10651.—I do not think you have conveyed more than that?—I know that Mr. Bell and Mr. Small and other men who are connected with the Newry Show are doing a great deal to improve the quality of the cow, and the position of the farmers of the locality.

10652 I myself have had some experience of the Newry Show, and I know it is an extremely well-managed, efficient, and interesting show to witness.—The mistake I spoke of could occur at Ballisbridge.

Thank you, Mr. McDermott, for your evidence. We are very much obliged to you.

Mr. P. B. SMALL CONTINUED.

10653. The CHAIRMAN.—Are you interested in agriculture in Poyrynpur district, Mr. Small?—Yes.

10654 And is dairying?—Yes. Up to a year or two ago I sent my milk to Belfast, and since then I had to stop, as I could not get labour. I had to give up the trade on account of that.

10655. You gave up the dairying industry?—Yes, as a dairy, but we keep some for our own use.

10656. You have ceased to be a seller of milk?—Yes.

10657. Is there any scarcity of milk in your locality?—Amongst the working classes there is. They do not get a sufficient quantity for their families.

10658. Is it because they cannot afford to buy it or is it because it is not available?—The farmers send their milk to Belfast wholesale and do not sell it by retail.

10659. Do the farmers who employ labourers give milk as a perquisite?—Yes, a certain quantity per day; but that would not be sufficient to keep the children in a proper way.

10660. Do you think the humbler classes in your district appreciate the value of milk as a food for their children?—I do not think they know its value as well as they should.

10661. Does that prevent milk being more generally used?—Yes.

10662. And if they did realise what enormous value it would be to nourish their children on, do you think they would use more of it?—Yes. I believe they could obtain supplies if a demand were created.

10663. Do you think that the fact that the demand from such people is somewhat small would interfere with the trade? We know that these people are sometimes in more difficult circumstances than at others?—There would not be a random demand.

10664. Is yours a dairying district?—No, not dairying. We are too far away from the town.

10665. But you spoke of sending milk to Belfast?—Yes.

10666. Do others send milk to Belfast from your district?—Yes, nine or ten from my district.

10667. Do you know whether or not the Belfast Public Health Authority has ever questioned the quality of the milk from your district or the condition in which it was received? They sent their own inspectors down to our district.

10668. Were they affected by facilities?—Yes, in all cases.

10669. And this action on their part was not resented?—I heard one or two farmers wondering why they came, but otherwise they were well received.

10670. There was no hostile demonstration?—No.

10671. We had evidence that they were not always as well received in outside towns, even close to Belfast,

as in your district. Are you familiar with the provisions of the Dairies and Cowbush Order?—Yes.

10672. Do you think they are too onerous on the cowkeepers?—I think they are reasonable, and a person who wants to keep a clean dairy has no reason to complain.

10673. Has there been much loss by tuberculosis in your district?—I have myself lost a good many cattle, and also some of my neighbours within the past nine or ten years. I myself lost four within the past two years.

10674. Were the animals slaughtered?—Yes.

10675. By the order of the Local Authority?—No, but by the "knacker."

10676. And you got no compensation?—No. I bought all these animals; they were quite healthy at the time I bought them.

10677. They did not come from any particular district?—No.

10678. They were all milk cows?—Yes.

10679. And apparently healthy and sound when you bought them?—Yes.

10680. How long did they take to develop the disease?—One in less than two years, and the others about three years, and they were very useful cows.

10681. Do you think they took the infective one from another?—I do not know. They were standing in different places in the byre.

10682. Had they been exhibiting symptoms long previous to the time you had them slaughtered?—About six months. There was one waiting for about six months before she was slaughtered. I did not know what was the matter, and I got a veterinary surgeon.

10683. Did he subject her to the test?—No, it was not necessary.

10684. Was the diagnosis confirmed by the post-mortem examination?—Yes. There were three others that showed some symptoms.

10685. You had a high death-rate amongst your cattle?—Yes.

10686. How many cows did you keep?—Twenty-five.

10687. They had not been exposed in any way, and were tested in the ordinary way?—Yes, and led in the ordinary way.

10688. Had any of your neighbours a similarly unpleasant experience?—There would be those that had the same experience. I think I was more unfortunate than the majority.

10689. Eight per cent. would be very high?—Yes.

10690. You have considerable experience of dairy cows; do you think the dairy cow to-day is as good a dairy animal as the cow you were familiar with, say, twenty years ago?—No, it is of inferior value generally.

* Subsequently, the witness stated that the name was Anderson, and that he lives within 14 miles of Poyrynpur, Co. Antrim.

10090. From the milk yielding point of view?—Yes, and the mating of store stock as well. I remember about thirty years ago my mother getting six or seven Irish cows and they were crossed with shorthorn bulls, and I know of her getting £20 apiece for the bullocks. We had heifers from these cows crossed with a shorthorn.

10091. What was the old Irish cow?—She had long horns, and some had no horns at all. She was a buff-coloured cow. There was black amongst the red in the colour.

10092. Would store animals of that type sell very well?—I would not buy a store bullock of that kind.

10093. In your opinion as to the introduction of the shorthorn milking strain?—It has been very injurious.

10094. Have you ever kept pure-bred shorthorns yourself?—Yes, and Lincoln Reds. They were not any better. I had ten heifers from a Lincoln Red bull, and we did not find them any better.

10095. We had another witness who spoke well of the produce of the Lincoln Red bull. She spoke extremely well of the produce and said that they were very profitable dairy cows. That is not your experience?—No.

10096. We were also informed that taking them as a breed they were no better than the shorthorns; but that one breeder weeded out the light millocks and improved the whole herd. You were not fortunate enough to get into that herd?—No.

10097. What do you call a good milking yield of an ordinary pure-bred shorthorn cow?—It is very hard to find the average—it would be very low, I am afraid.

10098. Have you kept milk records at all?—No, sir.

10099. But by close observation and watching the yield of the cows, you formed an estimate of the milking qualities?—Yes.

10100. Can you suggest any method by which the milking yield could be improved?—To use bulls of a milking strain. I do not suppose it would be possible to select a bull of one dairy herd, but I would go back and try if the lineage was good.

10101. You are conscious of the fact that for the past few years the milk yielding properties of the cow is the least important factor that the breeders look to?—Yes. They do not look to the milk yield at all.

10102. With regard to the store cattle of the country, do you think that they have improved or deteriorated?—I think latterly that they have not improved as they should have improved. I think they are at a standstill so far as improvement is concerned. I think there were as good store cattle in the country ten years ago as there are at present.

10103. Have you ever tried a cross which was suggested to us, the Ayrshire and the Shorthorn cross?—No, but in the Agricultural Show here we were trying an experiment in the shape of some Ayrshire heifers to cross with Shorthorns for milking purposes, and we will cross the heifers from these with the Shorthorn bulls.

10104. How would that affect the store stock?—The first cross would not affect it to its advantage, but later on it would come all right.

10105. Mr. WILSON.—Who was going to carry out that experiment?—Some of the farmers in connection with the Newry Agricultural Show.

10106. The CHAIRMAN.—This was one of the suggestions you had before the Society?—Yes.

10107. I suppose no record was kept or standard of better fat at a time the old Irish cow was in vogue?—No.

10108. Has the price of cows increased?—Yes.

10109. To what do you attribute that?—The shipping of all our good cows out of the country. We have not so many good young heifers as we used to have.

10110. Is there any milk sent to creameries from your locality?—No. We gave that up. There was no money in it.

10111. What you believe is that where milk can be sold pure it will yield a better profit than the creamery can afford to give?—Yes.

10112. Has the trade in milk to Belfast diminished or increased in your locality?—It is increasing. I was the first to start, and now there are ten.

10113. Did you sell to a local purveyor?—I sent my milk to Mr. Thomas English.

10114. We had him examined before us in Belfast. What price did you get?—I got 6½d. and 6½d. a gallon.

10115. Is winter dairying followed in your district?—No, except those nine or ten men who send milk to Belfast. They are bound to make provision for a supply during the winter.

10116. They have to supply a guaranteed quantity?—Yes. I think there is a sliding scale of a few gallons.

10117. Had you any reason to complain of the manner in which the transit was carried out by the railway company—did you sustain any loss of cans by the rough handling?—Sometimes there might be a slight short-ago, but we were inclined to blame the people at the other end, not the railway company.

10118. It was not a serious difficulty in the summer of the trade?—No. The only trouble was that the trains arrived in Belfast too late in the morning.

10119. With the result that your price was least?—Yes. If I could have got the milk in at 8 o'clock I could have got at least 1d. a gallon more for it; but we could not get that done as the trains would not arrive. If sixty or one hundred farmers would combine in providing a pasteurising plant at some of the stations, and send pasteurised milk into Newry, Rathfriland, Portlough and other towns, I think it would be a good idea. With regard to supplying milk to Newry and towns like that, you can only get a supply from a limited area, because it does not pay you to send milk by road more than two Irish miles. You could not have the milk proper time to reach the breakfast table at a certain hour.

10120. That is one of the advantages of the creamery over the other trade, that they take milk at different periods of the day?—Yes.

10121. Whereas if you are supplying customers direct it must be delivered at a certain time?—Yes.

10122. Was it through a co-operative society that you thought this pasteurising plant might be used and worked?—Yes, and if the Department would approve of the matter, to subsidise it to a small extent.

10123. Is your main desire in pasteurising to keep the milk fresh for a longer time?—Yes.

10124. It is not for the purpose of eliminating the foreign matter?—For both purposes, of course.

10125. Would your ambition be to produce it clean and pure in the first instance, in order to avoid pasteurising it to eliminate foreign substances?—I would start milking clean. If you do not start clean, you cannot finish clean.

10126. Pasteurisation is to some degree helpful if milk is not carefully handled, but your main purpose in pasteurising the milk would be in order to keep it sweet that it might be available for use for a longer period?—Yes.

10127. Is the prejudice against pasteurised milk dying out?—It must be dying out, because in Belfast it is largely used. I do not know that there is much pasteurising in local towns.

10128. Lady EVERARD.—Would you think it advisable that all the by-products of milk should be used the same rules as pure milk?—Yes, most strongly.

10129. Do you think that the veterinary inspector of a district ought to be a whole-time officer?—He certainly should be.

10130. Do you think that he should be appointed by a central body in Dublin?—At present we have a lay inspector and a veterinary inspector, too, and I think the veterinary inspector would be the proper person to inspect the dairies at all times.

10131. But you would approve of him being a whole-time officer, having no previous except for the Council?—If he was appointed for a large area.

10132. Say two for a county?—I certainly would.

10133. The CHAIRMAN.—The main purpose is whether or not you would think that more efficient administration would not be carried out if the veterinary inspector was entirely free from local influences of any kind?—If he were free from local influences the thing would be done better.

10134. Lady EVERARD.—That is what I wanted to know. Do you think that if milk is sent to Belfast and it is found to be adulterated, the retailer should be liable to the Sanitary Authority, and that he should have power to recover damages from the vendor?—The person who adulterates the milk should pay the fine.

10135. We have had evidence that the retailer of the milk ought to be liable in the first instance, and that he should recover damages from the person who supplied him?—If I send milk to Belfast and it is found to be adulterated I should be made to pay the fine.

10096. Do you think the retailer should have the right to get damages from the person who sold the milk to him?—Yes, that would do.

10097. Dr. McCORMACK.—The carcasses of the tuberculous cows, were they destroyed?—Kelly, the slaughterer got them.

10098. Were your byres in compliance with the regulations?—Yes.

10099. So that there is no deficiency of air space?—No. I have the byres all covered. One byre holds sixteen cows and another five.

10100. Have you much land?—About 150 acres.

10101. Is it well drained?—It is. We have some medium land that cannot be drained, it is too low.

10102. Mr. WILSON.—You made a comment, speaking of this first tuberculous cow, that she was under suspicion for some months before she was diagnosed as tuberculous?—Yes.

10103. Would it not be a good plan, in your opinion, as soon as a farmer or cow-keeper sees any suspicious symptoms, that there should be some indictment put before him to take the cow to the veterinary surgeon at once?—Yes.

10104. What indictment would you suggest as being most likely to effect that object?—The full market value would be too much to expect for a cow in that state. I should think two-thirds of the market value would be sufficient.

10105. The present limit is £30?—Yes.

10106. That would be low?—It would depend on the cow. I would say two-thirds of the market value would be sufficient.

10107. Would that be sufficient to induce the man to go to the veterinary inspector when the cow only showed slight symptoms?—I do not think so.

10108. The farmer draws attention to a cow that is suspicious, and in that case would you be in favour of giving full compensation; but in a case where the veterinary inspector himself finds the cow, that no compensation should be given. Would that be an inducement?—Yes.

10109. And not too expensive?—No. At the end of a few years he would not have many tuberculous cows.

10110. Are there many of these old Irish cows left?—No. Not that I know of.

10111. Not even in the outlying districts?—No. There is a shorthorn mongrel.

10112. There is none left?—Not that I know of.

10113. Mr. CAMPBELL.—Is tuberculous increasing?—I do not know that it is. I do not think it is.

10114. Your experience would rather indicate that it was?—I was more unfortunate than anyone in the district.

10115. How does the farmer usually employ his labouring men?—By the year.

10116. Does the practice exist of employing men by the half-year or year?—Largely.

10117. Is that going out?—No, it is coming more in, because we cannot get workmen to live in the house. We are depending almost entirely on Newry hiring market for our men.

10118. The practice of hiring men for a half-year is increasing?—It has not increased in number, but we have to resort to that plan for getting men.

10119. Is it a half-yearly hiring?—A quarterly and half-yearly hiring, but the half-year is the principal hiring.

Mr. H. McCORMACK, M.R.C.V.S., examined.

10120. The CHAIRMAN.—You are Veterinary Inspector to the Armagh County Council and to the Rural and Urban Councils of Armagh?—I am, sir.

10121. There are a good number of creameries in that district?—Yes, a 50.

10122. Are all the suppliers to the creamery registered?—They are not. They are frightened by the Order.

10123. The application of the Order to their premises?—Yes.

10124. Do the creameries continue to receive milk from the farmers whose dairies are not registered and are uninspected?—They do.

10125. And make no objection?—That is so, and it is very hard to find out from the creameries the

10095. Supposing a man as with you for one half-year, and he is not going to stop, but has hired with another man—has that occurred?—Yes.

10096. That man will usually get milk?—He is loaded in the farmer's house.

10097. I was thinking of married men?—They do not hire. Men with the cottages are engaged by the week and not by the half-year.

10098. You do not have a system of married men engaging by the half-year?—No, not as a rule.

10099. So that once a man is married he does not change his cottage?—He changes his cottage.

10100. But that is not done if he is living in a Union cottage?—We have apt them as evidence. The first one is up only about three years.

10101. Take the married man, who is a labourer on the farm, is it the practice that he gets milk?—It is as a rule. I give my men milk always. It is part of their wages.

10102. Does a man with a big family get more than a man with a small family?—No. They get about a quart of milk.

10103. Do you feel a certain moral obligation to supply your men with milk?—I do not know that I have felt that way; but I suppose I should.

10104. Do you think that farmers as a rule feel under any such obligation?—I suppose they do.

10105. Every farmer gives his labourer some milk?—Yes. I met a farmer's wife to-day bringing milk to her workman's wife, and delivering it herself.

10106. So that, generally speaking, the labourer up here gets some milk?—Yes, but not sufficient at all for the family.

10107. With regard to the milking qualities of the cows, you are aware, of course, that the Scotch and English people are coming over here and taking off our best cows to a great extent?—Yes.

10108. That does not indicate that our cows are getting worse?—No, but that there are less good cows left in the country.

10109. These English and Scotch dealers are coming more now to this country for cattle?—I don't know that the shipments are increasing.

10110. If they were, what would you say?—That we were getting deprived of good cows.

10111. Would you not say that our cattle were improved?—No.

10112. Why do the dealers come now more than formerly?—There is more milk wanted than twenty years ago, both in England, Scotland and Ireland.

10113. The dealers do come over?—Yes.

10114. And the price is going up?—Yes, because they are scarce.

10115. You can get less good cows in the market—that is the superior cows?—Yes.

10116. If your argument is correct, the price ought to be going down?—You are taking me up wrong. The medium class cow, I believe, is a far better commercial cow for the ordinary Irish farmer than the high-class cow, which sells better across the water.

10117. Why does she sell better?—She has a fine appearance. They bathe off this cow when she is dry.

10118. I do not think that argument shows that the cows are getting inferior?—There are less good cows in the country.

10119. Then the cows as a whole must be getting inferior?—I believe they are, and it is harder to get good cows.

persons supplying them who are not registered. They rather mean to clear myself or the dairy inspector making inquiries.

10120. That would indicate that the creamery authorities are not too sympathetic with the desire of the local authority to improve the conditions under which the milk is supplied to them?—What they fear most is the falling-off of the supply. It is not so much that they would not like to give information to the inspectors. They are afraid of the supply falling off.

10121. It has been represented to the Commission already that the application of the Order has restricted the number of persons supplying?—It has restricted the number.

10122. And if the Order were universally applied you think it would lead to further restrictions?—I do not

think so. I heard a complaint made that parties supplying milk come under the Order, and that the people making butter do not.

10094. It is complained by people selling milk that the provisions of the Order should also apply to those who sell milk products, and who at present are not liable to the same inspection as they are?—Yes.

10095. Do you think that is a legitimate complaint?—I think it is.

10096. You think the Order should apply to all engaged in the dairy industry?—I do.

10097. With regard to tuberculosis, have you had trouble in your district?—Not a lot. Immediately after the Tuberculosis Exhibition the general public then demanded that the suppliers should have a certificate from a veterinary surgeon, and the most of the milk vendors had their cattle tested.

10098. Mr. WILSON.—All over your area?—Yes. The men supplying directly to the public, not those who supply to the creamery. Even in the Military Hospitals it would not be allowed unless the suppliers had a certificate from a veterinary surgeon, and I must say that I tested myself all the suppliers about Armagh.

10099. The Chairman.—What number of cows did you subject to the test?—Roughly, I would say about 500 cows at that time.

11000. What proportion reacted?—About 20 per cent.

11001. That was by no means a high average. What happened to the reactors?—was any further action taken in their regard?—None whatever; they were snuggled away.

11002. Were they rejected from the herd?—Yes, because I refused to issue a certificate until they were out of the place.

11003. So that in order to preserve their trade in milk they were obliged to dispose of these animals somehow?—Yes.

11004. What became of them?—Some of them were sold in the fairs publicly.

11005. They were bought and went into other milk herds where similar precautions were not taken?—That is so.

11006. Does not that seem rather a one-sided way to carry out a reform in the interest of public health—that whereas one public body goes to the trouble and expense of having animals subjected to the test, that another allows these animals to come into their milk supply?—Yes.

11007. Would you be in favour of the universal application of the Order?—I certainly would, all over the country.

11008. Do you think that the control of the inspection by a central authority would lead to a more efficient administration than the local control would?—Well, it would, because the local authorities have more or less a local interest in the thing, and they are loath to prosecute.

11009. A person engaged in the same trade?—Yes.

11010. I can quite follow; and don't you think it would make the work of administration much pleasanter for the officer if he had an absolutely free hand, and that he had no monitor except his own conscience to determine what should be done in every case?—Yes.

11011. Don't you think that that would enormously increase the efficiency of the Order?—Yes.

11012. Have you had experience of the milk-producing qualities of the cows of the district?—I think I have, sir.

11013. Do you think it has improved?—It has not.

11014. Are you satisfied on that point?—Yes.

11015. Have you formed any opinion as to the causes which have led up to this deterioration?—The general opinion is more or less the breed of bulls we have in the locality.

11016. Premium bulls?—Yes.

11017. Is it suggested that they have had an injurious effect on the milk-producing power of the dairy herds of to-day?—The farmers attribute it to that more or less, and what they object to most is not so much the premium bulls, as the manner in which they are pampered or housed. They think that if they were reared in a more natural way, and not kept in such a condition, their offspring would be better.

11018. They think they are too artificially fed and too highly pampered?—That is so, sir.

11019. Do they think that the constitutions of the stock have been impaired?—Yes.

11020. Do you think that that is a well-founded belief?—I do, sir. I think it is a very sound doctrine.

11021. You think it is rather detrimental to the property of these animals that they should be so highly fed, and brought out in such a form that they are impaired?—I do not think that it would have a great effect on them at that time, but at two or three years they are always keeping them in show form.

11022. You don't think that is the best way in which they should be kept?—It is a well-known fact that keeping animals in that condition is not favourable to having a healthy offspring.

11023. They are as a rule not as prolific as if they were more naturally kept?—They are not.

11024. Are there many premium bulls kept in your county?—There are, sir.

11025. What percentage of the stock of Armagh would be the progeny of premium bulls—how far do they cover the needs of the place independent of other breeds?—The farmers in our locality patronise them greatly.

11026. Are there many other cross-bred bulls kept or used—that is what I want to know?—Not many.

11027. They have been largely driven out of Armagh by the introduction of the premium bulls?—Yes.

11028. Don't you think that must necessarily be an advantage, because some of the others were of a poor type?—They are of a poor type.

11029. Still the farmer is of opinion that the introduction of the premium bulls is responsible for the depression of the milk yield?—Yes. They are all right for store cattle, but there is a common complaint regarding the milking qualities.

11030. Have you ever felt it your duty to order the slaughter of a clinically tuberculous animal that you discovered in a dairy herd?—I have advised them to, but I have no power whatever.

11031. Unless the disease is distinctly visible in the udder?—Even then I have no power except to order it outside the byre.

11032. You have no power to order the slaughter?—I have not.

11033. It has been done commonly?—Yes, but I don't think I have any power.

11034. Do you think the provisions of the Order do not enable you to do that?—Yes, I think so. It might come in under the Public Health Order, but I do not think I have any power under the Diseases Order to order slaughter.

11035. In Article 17, sub-section 2, cows can be slaughtered on the certificate of the veterinary surgeon if their udders are affected with tuberculosis. The Sanitary Authority, on your certificate, can order the slaughter?—That is when the udders are affected.

11036. And the local authority is empowered to pay compensation, not exceeding £10, to the owner of that beast?—I have been making inquiries from the local authority, and I could not get any information on the matter. I was aware that they were slaughtered in other districts, and that was the reason I made the inquiries.

11037. There is no question about the power resting with the local authority to order the slaughter of such animals. If you ever discovered a beast with a tuberculous udder, you would have ordered the slaughter if you thought you could pay compensation?—Yes.

11038. Mr. WILSON.—Have you frequently met such animals?—No, not frequently.

11039. The Chairman.—What has happened with these cows—have they continued to supply milk and disseminate disease?—No. The cattle are removed from the premises. It is only last week that I wanted to apply the tuberculin test to an animal. Of course, I must get the consent of the owner. I interviewed him and he would not allow the test. The result was that he withdrew his registration, and the cow was sold in the fair next day.

11040. And probably went into another dairy herd as a milk supplier?—Yes.

11041. Were you satisfied that she had tuberculosis?—No, but I was anxious that she should be tested for other symptoms.

11042. Have you followed any reactors to the slaughter to ascertain how far the test had been confirmed?—I find in all the reacting cases that I followed that the test was correct.

11043. Because we had evidence before us in Belfast that four animals had been subjected to the test, and two proved to be reactors and two were not reactors. Three of the animals were followed to the slaughter.

one of the reactors turned out to be a sound beast, and two of those that were non-reactors were found to be suffering from tuberculous lesions. One of the animals was not traced?—If they had tuberculous lesions to a large extent you could not rely upon the test.

11044. We have also had that evidence before us, that in a very advanced state the application of the test gives no result?—That is right.

11045. We were not led to believe that the cows I mentioned had reached such a stage as to render the application innocuous?—The test is rather intricate. It must be carried out scientifically.

11046. We were informed that in these cases I have mentioned that everything was done in accordance with the conditions laid down by a qualified veterinary surgeon. Have you ever found that an animal that reacted proved on slaughter to be a sound beast?—I have not.

11047. On the contrary, have you found an animal to which the test had been applied and failed to react?—I have.

11048. In that case was the disease in a very advanced stage?—Yes.

11049. Would you be in favour of licensing dairy-keepers?—I would be in favour of licensing the premises.

11050. Would you take into consideration the character of the person making the application for the licence?—I would, sir.

11051. You would go further than licensing the premises, because you would take into consideration the personal character of the applicant?—Yes.

11052. You would only license for a limited period, and would withdraw the licence if the person was engaged in a trade that was doubtful or suspicious?—I would.

11053. Do you think that would impose any serious obstacle to carrying on the trade?—No doubt, under the present system of registration there are shades in licences for which, if a licence was applied for, it would not be granted.

11054. Where you find it necessary to order structural alterations to be carried out, do you find that the owners of the byres are willing to co-operate with you?—They are all quite anxious.

11055. And you are not obliged to have recourse to any extreme measures in order to ensure it?—I have had no extreme measures in my district. They have all carried out the instructions I gave them, or are carrying them out.

11056. With regard to the habits of the persons who are engaged in the milk trade, is any inspection imposed on them to see that they are clean in the handling of the milk?—Nothing except what I would draw their attention to myself when passing through the district.

11057. Is there a lay inspector in your district?—Yes, he is a sub-sanitary officer.

11058. What portions of the duties under the Order does he undertake?—He carries out the dairy inspection very well. He sees that the people are registered.

11059. Does he give any assistance to you in ensuring that the provisions laid down in the Order are followed by the persons engaged in the trade—does he make any inspection to see that the byres are in proper condition?—Yes.

11060. With regard to the milk itself—There is very little inspection with regard to the milk.

11061. You think there is reason to believe that there is not too high a standard arrived at from the point of view of hygiene?—That is right, sir.

11062. Has any outbreak of epidemic disease ever been traced to the milk supply in your experience?—Yes. We had a very serious outbreak of typhoid fever in, I think, 1906, traced to the contamination of the milk.

11063. At that time there was no Order in force?—No, sir.

11064. Had any effort been made at that time to restrict or forbid the sale of milk that was suspected as the cause of the outbreak?—Yes.

11065. And was it effective?—It was not.

11066. The milk continued to be sold?—There was no attention paid to the milk until there were a great number of the people bed, and they then paid attention to the milk.

11067. And it was reasonably suspected that the milk supply was responsible for the infection?—There was no doubt, because in the police barracks the milk was supplied by two separate persons. The man

receiving one dairy's milk had the disease, and the man receiving the other milk had not the disease.

11068. Did the local authority prevent that person from sending the milk while his dairy was suspected?—I cannot say for a fact. I examined the cows, and I know that there were such stringent measures put on that the man did not sell any milk more.

11069. Was he a large cow-keeper?—He had only eight cows.

11070. What would be the average herd of the dairy farmer in Armagh?—It is very small.

11071. Twenty cows?—No. The largest supplier that we have would have about fifty-six cows. The ordinary supplier would have from six to ten or twelve cows.

11072. Would the six and ten and twelve cow men supply milk to the creamery, or does he sell it for domestic purposes?—He delivers milk through Armagh town, that is if he is living convenient to it.

11073. Would six, ten or twelve cow men in the country supply milk to the creamery?—Yes, or even a man with one cow.

11074. Have you experience of a number of creameries?—I have.

11075. Do you know if they retail milk at their creameries?—I am not certain, but I do not think they do.

11076. Have you ever heard any complaint lodged against them as being responsible for the shortage of milk for domestic purposes?—No.

11077. Or that they refused to supply milk in small quantities when asked by poor people?—No.

11078. There is no scarcity of milk in the town of Armagh, I take it?—No.

11079. Does your information enable you to say that there is no district in the county in which a scarcity exists?—Not to my knowledge.

11080. You would not think it probable that the wife of a labouring man with a limited income would be unable to procure it for her family?—As far as my knowledge goes, they are able to procure any milk they require.

11081. Is milk as a food appreciated by the humbler classes?—I do not think it is—not in the poorer districts of the town.

11082. I suppose you do not know whether there are epidemic diseases amongst the children, or whether they are suffering any ill effects from not being properly nourished?—I cannot say that.

11083. Would you be in favour of enabling the Public Health Authority in a large centre of population like Belfast to send out six officers into a district to inspect the conditions under which milk sent in to the city is produced?—I would object to a lay inspector.

11084. Supervising the work of a professional man?—Yes.

11085. That is perfectly reasonable. No one would contemplate that, but what I would like to know is this—supposing, for example, that a disease had become epidemic in Belfast, would you think it reasonable that the Public Health Authority of the city should have the right to send their Medical Officer of Health into the district from which the milk was sent, for the purpose of ascertaining the conditions under which it was produced?—Certainly.

11086. You would have no objection to that?—No.

11087. Lady EVERARD.—You spoke of the creamery managers not being willing to tell you where their milk came from?—Yes.

11088. If they sell they are supposed to keep a register showing the names and addresses of those from whom they get their supply of milk?—That applies to purveyors; but I do not know that any creamery in my district retails milk.

11089. Would you say that it would be advisable to have the by-products of milk under the same regulations as new milk?—Yes, from my experience as to how it is gathered throughout the locality.

11090. You say in your summary of evidence the dairy cattle are examined every month in the Urban District?—Yes.

11091. But they are turned out on grass for six months in the summer and are not inspected?—In some cases the grass is near the town, and they may be inspected as they may be brought into the town to be milked. During the summer if I should drop into the bye when the cows are in, I would examine the cows then.

11092. But when they go outside your area they would not be under your jurisdiction?—No.

11003. I see there is a large number of goats kept in the locality?—Yes.

11004. Are they kept by the labourer?—It is a customary thing, and I think a fiddly idea of some farmers that a goat being there has a certain influence in preventing disease.

11005. The CHAIRMAN.—An antidote to disease?—Yes. Our district is very subject to red water, and at one time there was a very strong fall that if there was a goat running over the grass it would be a preventive.

11006. Lady EVERARD.—It is supposed also that it is a preventive against abortion?—Yes.

11007. What sort of goats are kept—are they the common goats?—Yes, the common goats.

11008. And there has been no effort made to improve them by crossing them with the Anglo-Nubian or the Toggenburg?—No.

11009. Dr. MOOREHEAD.—Is tuberculosis on the increase with you?—No, it is on the decrease.

11010. Mr. WILSON.—Have you formed an estimate as to what would be the approximate expense of carrying out a practice recommended in the first page of your summary of evidence?—It should be compulsory on all Sanitary Authorities to use the tuberculin test twice a year on all cattle supplying milk direct to the public?—I have not, sir.

11011. You realise that it is a matter of millions?—Not in my district.

11012. Your own personal experience showed that 10 per cent. of the cows you examined reacted, consequently if that state applied all over Ireland it would be a costly matter?—Yes.

11013. You did not take financial considerations into account?—No.

11014. Mr. CAMPBELL.—Do you think that these 10 cows were actually giving tubercular milk?—I do not think they were, but that I cannot say.

11015. From your professional knowledge do you think that they were?—I do not think so.

11016. Would it be at all surprising that none of them were giving tubercular milk?—I would not be surprised.

11017. Do you not think it is rather drastic turning these cattle out of the dairy?—Yes, but you could not tell how soon they will give tubercular milk. An animal may infect its neighbour and re-infect itself.

11018. Quite true; but at the same time it surely is a very drastic measure, and you see you cannot get out of them. People will not sell them. The only thing you gain is that you turn them out of the district. The country did not gain anything by that?—No.

11019. Mr. WILSON.—Have you carried out the tuberculin test ever since?—No. Immediately after the Tuberculosis Exhibition it was customary when the milkmen came to the door to ask, "Have you got your cows tested?" If he said "No," they said, "We will not take milk from you unless you get a certificate from the Veterinary Surgeon." That has fallen off since then, even with the institutions.

11020. Mr. CAMPBELL.—So that if you tested the cows again you would find reactors?—Yes.

11021. This was a flesh in the pan?—Yes.

11022. With regard to your work under the Order, have you anything to guide you as to the degree of severity with which you make your examination of the premises in which the animals are kept and the conditions under which they are kept?—No. In my opinion it rests entirely in the hands of the Veterinary Inspector.

11023. Has there been any conference of the Veterinary profession to arrive at some uniform standard?—Not to my knowledge.

11024. Do you think it is not possible that one Veterinary Inspector might be twice as stringent as another?—That is so.

11025. Do you not think that a mistake?—It is rather a mistake that you cannot have a universal carrying out of the Order.

11026. Has nothing ever been said to you by the Authorities employing you as to the standard of cleanliness, and so forth, that you are to maintain?—No; the Authorities never spoke to me on the matter.

11027. They leave it entirely to yourself?—Yes.

11028. Do you think something should be done for the purpose of co-ordinating the ideas of the Veterinary Inspectors as to what would be the condition that would be objectionable, and what would be allowed to

pass?—It would be very hard to get at that, because if you take the poor localities where the farmers have only one or two cows, you cannot ask that man in all fairness to go to the same extreme as the man supplying to the public with twenty or fifty cows.

11029. Other people take that view, too, but at the same time the man who has two cows ought to be as cleanly with his milk as the man with a hundred?—That is so; but, as a rule, a man who has two cows has a family of his own, and they can attend to them closely. The man with the large number of cows must employ men to look after them. He is supplying to the public, as a rule, and you must have the Order better carried out in his case.

11030. But it does not follow that you cannot do something to co-ordinate your ideas as to the standard you would put up?—I admit they ought to be all brought up to one standard, but I think that will have to be done gradually.

11031. Have you yourself seen the conditions in other counties or other districts?—I have.

11032. Have you seen other Veterinary Inspectors passing what you would not?—I do not think I have, but I am quite satisfied that had the Order been carried out severely in my district, we would immediately have to close six or seven creameries in the district, and I think that would be a great hardship on the farmer. In the first instance I would ask the cow keepers to do little things that could be done by any one; but if you ask them to go to too much expense to put in a new floor, and to put up a new window there, and to fit up the ventilation, he says, "I will withdraw my registration."

11033. But still you have power to make him do that?—Yes.

11034. You have that power?—Yes.

11035. Would it not be well if the Veterinary profession had some means of arranging as to how severe they would be at the outset?—It is left to our own discretion, but we are under the Local Government Board inspection.

11036. Is there an appeal from you to the Local Government Board?—Not that I am aware of.

11037. You say that you would have an objection to the Medical Officer of Belfast going to inspect places from which milk is being sent into the city. Would you have any objection to the Veterinary Inspector doing that?—No.

11038. If he came to over-ride your decision?—No. I do not think a Veterinary Surgeon would do that.

11039. Supposing, for example, the Belfast Authority suspected tuberculosis coming from the milk from Armagh, and they sent down their Veterinary Inspector to inspect the herds, would you agree with that?—I would be willing that he should do so.

11040. Do you think it is possible to breed what you might call a dual purpose cow—a cow that would be a good milker and at the same time produce good beef, or do you think it is necessary to make them either one or the other?—It is more useful to the farmer to have an all-round cow; but, of course, farmers in our district do not know how much milk the cow is giving. They do not keep records. They do not know whether to breed from a cow or fatten her.

11041. If that were done you would be in favour of continuing the present system of breeding a double purpose cow?—I think that for the small farmer it strikes very well.

11042. Sir BRANFORD WOODHOUSE.—I suppose in the County Armagh there are one or two—cowmen who would sell milk to their neighbours?—Yes.

11043. Are those men registered?—They are not all registered. As many as the Dairy Inspector and myself can find are registered.

11044. Would the enforcing of the Order be a hardship in the way of closing their places, and thus depriving the poor people of a supply of milk?—It would not.

11045. Why not—are there larger districts sufficiently convenient which are already under the protection of the Order?—Yes. I do not think there is any necessity whatever.

11046. The CHAIRMAN.—What number of dairy cows do you think are supplying milk to the creameries of Armagh from the registered districts?—I have six hundred registered cow-keepers in the district, and I would say that they had an average of five cows each.

11137. That would be three thousand cows?—Yes.
11138. Is it the custom to milk the cows for one period only, or are they kept as long as they are profitable?—With the farmer they are kept. With the supplier to the Urban District they are disposed of.

11139. The farmers have no means of knowing exactly whether the cows are good milkers or not unless records are kept?—No.

11140. And that is not usually done?—Not except by a supplier to an institution.

11141. Mr. WILSON.—In spite of this very large number of cows that are sending in milk to the creameries there is no scarcity in the district?—No.

11142. The CHAIRMAN.—You do not believe that any of the poorer population, desiring to procure milk for children or for domestic use, are deprived of it by inability to procure it?—The only thing is that the owners of cattle themselves are not inclined to keep enough of milk for their own use. They are inclined to send it all to the creameries.

11143. That is a very stupid policy?—It is.

11144. It is want of appreciation of the food value of milk?—Yes.

11145. So that a crusade will have to be preached pointing out to the general public the advantage of using milk as a diet?—Yes, using pure milk as a diet.

The Commission adjourned at 6.15 p.m. till the following morning.

TWENTY-FOURTH DAY.—FRIDAY, 18TH MARCH, 1912.

The Commissioners resumed their sittings at the Town Hall, Newry, at 11 a.m.

Present.—P. J. O'NEILL, Esq. (Chairman); LADY EVERARD; MRS. MARGARET MCNEILL; Sir STEWART WOODROUSE, M.D.; ALEC. G. WILSON, Esq.; and J. R. CAMPBELL, Esq., B.Sc.

S. W. STRANGE, Esq., Secretary.

De J. KRAM, *s.c.*, examined.

11146. The CHAIRMAN.—You are a member of the Newry Urban Council, I understand, Dr. KRAM?—Yes.
11147. And you are also a medical practitioner in the town of Newry?—Yes.

11148. With regard to the milk supply to the town, do you think it is scarce?—Yes.

11149. Do you consider it is due to want of money or of milk?—I think it is want of milk.

11150. Milk is not procurable in the poorer parts of the town for people having money to buy?—That is so—people who are occasional buyers of milk. In the summer there is a plentiful supply. The cattle go round twice a day, and in the winter time only in the morning, and they have only a supply to suit their regular customers, and the purveyors of milk in town cannot get milk for sale to the poor who may want a halfpennyworth, a pennyworth, or a twopennyworth.

11151. The irregular customer is the one who finds the greatest difficulty in supplying his needs?—Yes.

11152. Is it on account of want of capital on the part of small purveyors, or is it on account of their inability to secure an adequate supply?—I think it is because they cannot get an adequate supply.

11153. Has this an effect on the infant life of the town?—Yes. I was in a house yesterday. Of course, you know there are a lot of people working at the mills here. The mothers, as a rule, have to work in the mills, because there is not much work for the men. I saw one of these children fed by a foster mother with a poor quality of bread and milk.

11154. Is it rather a universal practice for the women to work, and that the husbands are in some instances unable to get employment?—It is very common.

11155. And it must have rather an injurious effect on the children—they are not properly looked after or properly fed?—No. This child I spoke about had a face as dirty as a pig, and it was cold.

11156. Surely rearing a child in that condition must have an effect on the constitution in after life?—I would say so.

11157. And if epidemic disease broke out in the town, a child of that class would be more likely to fall a victim than a well-nourished and healthy child?—Yes.

11158. There are diseases to which children are liable because of the improper feeding they get, such as cholera?—Yes, and diarrhoea.

11159. In the summer season?—Yes, and even in the winter.

11160. Would you attribute that to an impure or deficient milk supply?—A deficient milk supply in the first place and improper feeding.

11161. Is condensed milk used at all as a substitute?—Yes, there are some families who use it.

11162. Have you formed any opinion as to the merits of condensed milk as a food?—I do not think it is a good food. I think children reared on this milk would not grow up well.

11163. Would not be likely to develop a vigorous constitution?—No. Newry is practically kept up by about four mills, and it is practically all female labour, and there are on the quay a few labourers who discharge boats; but they only get a boat in now and then.

11164. Occasional labour?—Yes, and that means occasional funds and occasional buying of food.

11165. Because it is difficult to provide for the uncertain demand that exists in a place like this?—That is so; but I notice in the winter the milkmen have sufficient, and if they have to supply their customers with any more they have to get it from another milkman.

11166. Have you any experience of the country districts around?—Yes, up around Armagh.

11167. Do you hold any public appointments?—No.

11168. Do you work amongst the people?—Yes.

11169. Do you think there is a scarcity of milk in the country districts around?—My father was a dispensary doctor up in Meigh, and while there was plenty of milk in the summer months, there was none in the winter. The people up there will not sell.

11170. Even though they may have milk produced on their premises they refuse to sell it in small quantities?—Yes.

11171. For what reason?—Some superstition. Unless they are really in the trade they will not supply.

11172. They think it is unlucky?—Yes.

11173. That is a new development and a new difficulty. Is that at all prevalent?—Yes. Whenever a person comes to me suffering from stomach trouble, and I order milk diet, they say, "it is very hard to get milk, our cow is dry, and it is very hard to get any"; and the difficulty is to prescribe a diet that will suit their stomach.

11174. I have not heard of that superstition before—of its being unlucky to sell milk. Is it prevalent over the North?—I do not know. I only speak of the district with which I am familiar.

11175. Has any outbreak of disease been traced to the milk supply in your district?—No.

11176. So you have no unpleasant experience about the milk supply being a source of infection?—We had an epidemic of typhoid, and there was a suspicion about the milk supply, but it was not proved.

11177. Was it traced as closely as it could be, or was it traced to a certain point, and then abandoned?

because of inability to get positive proof?—It was tried as far as possible, but nothing could be found.

11178. Were the cows subjected to an examination by a veterinary inspector?—Yes, and nothing could be found wrong.

11179. Did the medical officer of the district make an examination of those handling the milk?—Yes, and the Local Government Board Medical Inspector, Dr. O'Brien, was also down.

11180. Were any of the employees subjected to the Widal test to discover if they were typhoid carriers?—I do not know.

11181. You were not in charge of the investigation yourself?—No.

11182. Was the supply of milk from that suspected source suspended during the period that the investigation was going forward?—No.

11183. Would not that seem to be a live danger, and if it was discovered that the milk was the source of infection that it should not be disseminated?—It was not considered definitely that it was.

11184. But even if it was suspected, would it not have been well to suspend distributing milk from that particular depot until the matter was cleared up?—This person supplies milk all over the town, and has a great number of customers, and the outbreak occurred in one little district of the town.

11185. So that it was open to doubt as to whether or not the milk supply was the source of infection?—Yes.

11186. Miss McNEILL.—There was no case outside that small district?—No.

11187. The CHAIRMAN.—Though the same milk vendor was supplying milk to the people in different parts of the town there was no trouble elsewhere?—That is so. In some houses in which the outbreak occurred they were getting milk from two sources.

11188. Lady EVELAND.—Were both sources outside?—Yes. As soon as the outbreak was notified all the employees were medically examined and put on one side, and new employees were brought in, and a new water supply was provided.

11189. Miss McNEILL.—For the dairy farm?—Yes.

11190. The CHAIRMAN.—Was that done voluntarily by the owner of the farm, or on the suggestion of the medical authority?—At the suggestion of the Medical Officer of Health.

11191. Lady EVELAND.—The employees were not subjected to the Widal test?—They were not that I know of. Dr. O'Brien, the Local Government Board Medical Inspector, came down to investigate the outbreak.

11192. The CHAIRMAN.—And made a thorough examination?—Yes, and was nearly satisfied that the outbreak could not be due to the milk from that dairy.

11193. Is the health of the mill-workers bad?—They suffer from anæmia.

11194. Has the food they take anything to do with that condition?—Yes. They are very fond of tea, morning, evening and night.

11195. Do you believe that if milk was more plentiful that they might use it as a substitute for that rather questionable food they submit on?—Some milk-owners got up a disingenuous, and tried to get the people to get dinner on the mill premises; but they could not get them to do it, and they fell back on their tea.

11196. Lady EVELAND.—Do they pay for the meal provided in the mill?—There would be a small charge made.

11197. The CHAIRMAN.—The mill-owners provided this accommodation with a view to having their employees better fed and better nourished?—Yes. They say that the employees were in bad health.

11198. Has that effort collapsed?—Very nearly. In some mills they still have breakfast. A youngster came to me recently and said that he had not a good appetite. I asked him what he had to eat, and he said he used to have tea before he left home in the morning, and for breakfast had three bowls of porridge, and that after that he had a cup of tea and three cups of bread and butter.

11199. And he was still nervous about his appetite?—Yes.

11200. That shows that he was a careful boy—at least of himself?—Yes.

11201. You believe that, taking them as a whole, the mill hands are insufficiently nourished for the labour in which they are employed?—Yes, and especially the married women.

11202. I see you make allusion in your summary of evidence to the fact that the mothers become prematurely decrepit?—Yes. They work in the mills too long, and hurry back at the first moment after their confinement.

11203. They are constrained to that owing to their financial position?—Yes.

11204. And though they may have husbands ready to work, the economic conditions are such that men cannot get sufficient employment?—Yes.

11205. Do you think that these people value milk as a food at its proper worth?—I do not think that they do, although I think they are getting a little more educated about milk than they were. I do not believe that they still understand the value of milk.

11206. And that the children get other food less suitable?—Yes. From the very earliest age the children get tea.

11207. Which, of course, is very unwholesome?—Very. There are a good many children suffering about Bury from tuberculosis of the bones and joints.

11208. And you attribute some of these malades to the improper food on which they are reared in the earliest years of their lives?—Yes.

11209. What quantity of milk do you think would be taken into the family of a workman earning, say, 4s a week, and with a wife and four or five children?—I think about a pint of milk per head is required.

11210. Do you think that quantity is actually consumed by these families?—It is not.

11211. As a matter of fact, the majority of these people use milk as little more than a condiment to colour tea?—Yes. A good many of them make bread with soda. In the winter time the butter-milk is scarce, and then the people make bread with water and soda, and I do not think that that is very good.

11212. Lady EVELAND.—Would you say it would be better than white baker's bread?—Yes; but it has not the same nourishment as bread made from buttermilk.

11213. The CHAIRMAN.—Would you consider it a judicious expenditure of public money to cheapen the price of milk in order to induce the working-class population to use it more frequently for their nourishment?—Yes. That is what I would like to see—some way of regulating the supply of milk so as to have it always available.

11214. And at a fixed price?—Yes.

11215. And you think that would be judicious expenditure of public money from whatever source obtained?—Yes. I think that is one of the ways in which infant mortality could be reduced.

11216. It would also be helpful, I take it, in the fight against the development of tuberculosis?—Yes. You would be getting at the primary root of the evil by getting the children strong and healthy in their infancy.

11217. Of course, if a child is improperly fed, and grows up weakly, if there is a hereditary tendency to tuberculosis in the family it will be more liable to the disease than a person properly developed?—That is so.

11218. So it would appear to be beginning at the wrong end to arrest tuberculosis, unless some effort is made to have the health of the population improved by having the children nourished in the earlier stages of their growth?—Yes. When you provide sustenance you are at the wrong end of the stick; but if you start at the infant you have a better chance of getting rid of the disease.

11219. Of course, a sanatorium is valuable in preventing the spread of infection amongst healthy members of the community?—Yes.

11220. But you would prefer beginning with the child and having it properly nourished from its earliest infancy, and fed on suitable food during the years of development?—Yes, and the mother also. With regard to sanatoria, I do not think that they help the patients in the last stage of consumption, but send them home.

11221. Miss McNEILL.—They arrest the disease from being disseminated amongst other members of the family?—Most certainly will not keep a patient when he gets into a very bad stage.

11222. Lady EVELAND.—In the sanatorium he ought to have learned hygiene sufficiently not to be a source of infection to others?—Yes; but of course, in a good many cases, when the patients get pretty weak, precautions are not always taken. It is well known that even without the spoutum, the microbes come out in the breathing.

11235. I think that is rather a debatable point?—In some cases it has been proved.

11234. Is there any milk powder used in Newry?—No.

11235. You spoke of a reputation of people refusing to sell milk?—Yes.

11236. What class of people?—Small farmers who might have one or two cows.

11237. You say that the outbreak of typhoid that occurred was examined by Dr. O'Brien?—Yes, the Local Government Board Inspector.

11238. And he did not think it necessary to apply the Widal test?—No.

11239. Is cocaine at all used by the poor people?—Yes, I recommended cocaine largely.

11240. Do the people who have tuberculosis appreciate how infectious the disease is?—I believe that since we had an exhibition here—since Lady Aberdeen came to Newry—the people have come to consider tuberculosis as being really infectious. Before that they had got away with it.

11241. Is notification of tuberculosis compulsory in your district?—Yes, in the rural district.

11242. But not in the urban?—No.

11243. Are the houses thoroughly disinfected after a patient dies of tuberculosis?—Yes. It is the sanitary officer that sees to that. We disinfect with formalin.

11244. Do you do it in the urban district?—Yes, and also in the rural district.

11245. You say that the men have no employment in Newry? What do they do—do they stay at home to mind the children?—They stand at the corners.

11246. Mr. WILSON.—Live on their wits?—They get on odd jobs.

11247. Lady EVANES.—Do you mean to say there is absolutely no work in the mills for the men?—Very little.

11248. It seems horrible that the mothers of families have to neglect their children and work in the mills?—It is; but they have to do it.

11249. Has it come under your notice that the milk supplied to the very poor is not of the same quality as that supplied to better class people?—Yes. I have seen milk that is rather poor.

11250. Is that sent for examination?—The Food and Drugs Inspector goes round and takes samples.

11251. Are there ever samples sent in by the nurses of the district?—I have not heard of any. I do not know.

11252. Have there been any prosecutions?—Not lately. Although I must say that a couple of years ago a woman showed me a bottle of milk which she had got from a milkman in the country, and she thought it looked queer, and she asked me my opinion about it. It was full of pus. The officer of that cow must have been very badly infected.

11253. Was that milk sent to the Food and Drugs Inspector?—I brought it to the Council.

11254. Was not the offender prosecuted in that case?—No, we could not get at him. The milk inspector went next day, but did not succeed.

11255. Surely he could have been made amenable?—The first sample was not taken in a legal way.

11256. I think you said that enriched milk came under your notice in the case of a child fed by a foster mother?—The food was of a poor quality. The child was getting bread and milk, but it was of a very watery nature.

11257. Do you think if depots were established, the same as have been started by the Women's National Health Association, it would be a good idea? Depots have been started at several towns in Ireland. At Bire a car goes round the town and supplies milk at trowan-shilperry a quart all the year round. In Carlow and Wexham depots have been started, and the poor can buy milk. Do you think that would be an advantage to the poor in Newry?—Undoubtedly.

11258. These milk depots are paying their way. It is not a philanthropic proposition, except that the ladies organise the depot?—If something like that could be done it would be a very great boon to the mill-workers and others in this place.

11259. The CHAIRMAN.—With regard to the occupation of the men, is the reason they are not employed in the mill because female labour is cheaper?—In all the spinning mills they consider that girls and women are

more suitable for the work. Of course, there are a few men employed as machinists.

11260. But they would be a very small proportion of the employees generally?—Yes, a very small proportion.

11261. Lady EVANES.—Is the work in the mills likely to give the employees tuberculosis?—Is there a doubt?—Yes. They have put in time lately. A good many of the "roughs" developed tuberculosis.

11262. The CHAIRMAN.—Would they be employed in clouds of dust?—Yes. It is the irritation of dust that gives it.

11263. Mr. CHAIRMAN.—Are you talking of the heather in the mill?—Yes.

11264. Does the same apply to the scotchmen?—I cannot say.

11265. Mr. STEWART WOODHOUSE.—Are most of the female workers mothers or girls?—The most of them are girls, but there are a good many of them mothers.

11266. One-fourth would you say?—Hardly.

11267. Are the most of the children nursed by their mothers?—Yes.

11268. The great majority?—The great majority are nursed by their mothers. Those mothers that go into the mills cannot nurse them.

11269. But speaking generally, would you say that three-fourths of the children are nursed by their mothers?—Yes.

11270. The milk procured by the poor is bought in shops?—Yes, from small purveyors of milk.

11271. They would increase their stores if they could calculate on an increased demand?—The increased demand creates increased prices.

11272. At what price do the poor get the milk?—They get about a glass for a halfpenny.

11273. About a pennyworth would be half a pint?—Yes, about that.

11274. In the country parts do the goats rub the situation?—There are some goats kept, but not as many as I think there ought to be.

11275. Do you think the keeping of goats is increasing at all?—Not very much about here.

11276. There is no prejudice against goats?—Yes. They destroy the fences.

11277. There is no prejudice against the milk?—No.

11278. Mr. CHAIRMAN.—Are you aware whether any young children are reared on goats' milk?—Not about Newry.

11279. Has it ever been recommended, do you know? I mean for children that are still on the bottle?—In the country it has been done.

11280. Would you regard that as a good substitute for cows' milk?—Yes, but I believe that the baby must be used to it. If you change from cows' milk to goats' milk it would not agree with the child so much. I have seen that. It seems if you start a baby on goats' milk you must keep it on goats' milk.

11281. But you cannot point amongst your patients to any children that have been reared upon goats' milk?—No.

11282. Miss McNamee.—Would you approve of the use of separated milk, provided it could be bought in good condition, for older children?—It is very much cheaper?—The fat is taken away from it.

11283. If the fat is replaced, do you think that a supply of separated milk would be of use to people who cannot get a sufficient supply of pure milk?—Yes.

11284. Do you think that there is any danger of separated milk being sold as new milk?—That would be difficult to answer. There is always a chance of fraud with all milk.

11285. Do you think that if people such as you spoke of could obtain a supply of separated milk for the older children, it would be a useful addition to their food at a cheap rate?—Yes.

11286. And they could substitute the fat in a cheap form?—Yes. I believe that would be a great way to help the poor people.

11287. Lady EVANES.—Is it your opinion that all the by-products of milk should be under the same regulations as new milk?—Yes. The people are getting a little better with regard to storing the milk than what they used to be. In the country districts they used to keep it in the room where they slept, but I believe that now they are coming to consider it is better to have a separate place. They are getting educated as they go along.

Mr. WILLIAM CROSSLAND ANSWERS.

11278. The CHAIRMAN.—You are the Town Clerk of Newry?—Yes.

11279. And also executive sanitary officer and registrar of dairies?—Yes.

11280. Have you any officer, other than your veterinary inspector, to look after the dairies and milk-shops of the town?—We have a dairy inspector, who is also a sub-sanitary officer.

11281. What duties does he discharge?—He goes round in the first instance with the veterinary inspector, and if the veterinary inspector considers any improvements or alterations are necessary the dairy inspector sees that these are carried out.

11282. With regard to the milk shops, does he make an inspection of them?—Yes, he does.

11283. Do you know has he ever insisted on varying the conditions under which the milk is stored?—Yes. He has frequently insisted on that, and several notices. In these small milk purveyors' shops the milk is kept as a rule in crocks, and it frequently happens that the inspector finds that the crocks are not covered, and he insists on wooden covers, and if there is anything in the shop which might bring the milk in any way he insists on it being removed to a different part of the building. On some occasions possibly oil was found in parts of the shop, and he has had it removed.

11284. These people are very small dealers and have got very limited accommodation?—Yes.

11285. And in order to carry out a general trade they are obliged to mix the things higgledy-piggledy?—Yes.

11286. Has it been found necessary to prosecute?—In regard to two cow-keepers, we have had to prosecute, to enforce certain alterations that were required by the veterinary inspector. These two parties gave up the trade and left the district altogether.

11287. Were the alterations demanded of such a character as to involve a large expenditure—were they of a very drastic character?—No; but I think these people had an idea of going out of the milk trade at the time.

11288. Whether you prosecuted them or not?—Yes, and the alterations required included some structural changes of premises which did not belong to the parties themselves.

11289. They had not any permanent tenure in the premises?—No.

11290. And they abandoned the sale of milk altogether?—Yes.

11291. Were they largely in the trade?—No, in a very small way—two or three cows each.

11292. So that the drying of that number out of the trade did not materially diminish the supply in the town?—No; but I do not say that they were the only people that went out of the trade. At present we have thirty-three cow-keepers and purveyors of milk in the urban district.

11293. What number of cows are kept by these people, could you say?—I should say on an average about three cows. I am not quite certain. We have twenty-three purveyors of milk. These are small people, having little milk-shops, and who have no cows, and who buy the milk from countrymen. We have then thirty-four purveyors of milk residing in the rural districts who send milk by cart into the town. Since the introduction of the Order about twelve cow-keepers in the urban district have ceased to keep cows. I do not say that that is to be attributed to the introduction of the Order; but some have left the district and gone away, perhaps for domestic reasons. In some cases I think it was that they could not find the business to pay, owing to the high prices of feeding stuffs and the difficulty of getting labour.

11294. Notwithstanding the fact that we heard from the last witness that the great proportion of the male population are industriously standing at the street corners?—These are people who are engaged in the discharge of vessels, and their work is not regular. These men who discharge coal at the basin might have only one cargo in the week, and some weeks they might have three cargoes. In the meantime they stand about the corner. They are not the class of men to take charge of cattle. They know nothing about them. They were not reared up to it.

11295. Has your veterinary inspector ever reported to your Council that he discovered cows that were suffering from tuberculosis of the udder?—No.

11296. Has he ever asked for authority to have animals slaughtered that he suspected of being tubercular?—No.

11297. Since the Act came into operation has any application come before the Council?—No.

11298. Is there much difficulty in securing that the people handling the milk are clean in their habits and keep their hands and clothes clean?—The veterinary inspector tells me he finds considerable difficulty in getting people to keep their hands washed and the cows properly groomed.

11299. Does your dairy inspector insist on the carrying out of that portion of the Order?—Yes, as far as the urban district is concerned, but the larger portion of our supply comes from the rural district, and he has no power to go into the rural district. The same veterinary inspector inspects in the rural district as in the urban.

11300. He is an officer of the Newry rural district as well as of the urban district?—Yes, but the dairy inspector is not.

11301. Has any objection ever been made to an officer from the urban district acting into the country to ascertain the conditions under which milk is raised? I suppose that difficulty is overcome by the fact that the same veterinary officer does duty for the two districts?—Yes. One Rural District Council did not appoint an inspector, and seeing that we were getting portion of our supply of milk from that rural district, we asked the Local Government Board to sanction an inspector going into the rural district. They thought it was better to hold back, because at the time they were rather insisting on the Rural Council appointing a veterinary officer, and after a few months he was appointed, so we found it was not necessary to go into the rural district—at least we did not get the power in time.

11302. And for some reason the inspector was appointed?—Yes. The Local Government Board threatened to get a mandamus to compel the Rural Council to appoint one.

11303. That is healthy, because it shows that the Urban Council was realising the necessity of having more supervision exercised over the milk that was supplied to their town?—Yes.

11304. Did the outbreak of typhoid fever to which reference has been made occur before this period?—No. That occurred only in October of last year.

11305. Was every effort made to ascertain the source of infection with regard to that outbreak?—Yes. We have got two Medical Officers of Health in Newry, and we have got a consulting medical officer, and these three, with Dr. O'Brien, the Medical Officer of the Local Government Board, investigated that outbreak to the full. I think they left nothing undone to trace the source of the disease. Very serious suspicion attached to one dairy, and we got a sample of milk and had a bacteriological examination, and also sent samples of the water for analysis. The milk was found to contain some dirt organisms, and the water was found to be highly polluted with sewage matter. We immediately got the well closed and a new supply laid on. The people who were attending to the cattle were changed, and those people who had been in charge of the cattle were all examined by the medical men, and they could find nothing wrong. It was discovered later on that this particular dairy got a small supply of milk from an adjoining cow-keeper, and I should say that he was not registered as a cow-keeper, and when his premises were examined they were found to be in a very dirty condition, and some of the inmates of his house were said not to be in good health for some time. They were also medically examined, and the Widal test applied; but it proved negative.

11306. Miss McNeill.—Was it applied to the workers in the original dairy before they were changed?—No. The medical officer did not think it necessary.

11307. The CHAIRMAN.—Though he applied it when the suspicion seemed to be localised to a smaller area—they had some individuals then suggested to the Widal test?—Yes, who were stated not to be in good health for some time, and the results were negative. I am strongly of opinion—but I have no definite proof—that that was the cause of the outbreak of typhoid. It was confined to a certain district, and this particular district was, I may say, almost exclusively supplied by this particular dairy. At that time there was one other man in a different part of the town which got the milk supply

from a different source; but against that, in the wisdom of every year you have a few cases.

11326. *Sporadic outbreaks?*—Yes.

11327. What dimensions did the outbreak assume?—Twenty cases.

11328. There was no fatal case?—Yes, one case of a young man who had been in very bad health.

11329. Was the sale of milk suspended in the dairy at the time?—No. We had no power unless we could get a certificate from the Medical Officer of Health, and he was not prepared to give it to us. The dairy had a very large number of customers, and at the time there were only fourteen cases, and then there was one case that had not got a supply from that particular dairy, and there were some cases that had a milk supply from two or three sources.

11330. I understand your veterinary inspector is away?—Yes. He asked me to apologise for his absence. He is in Donegal for the Department of Agriculture.

11331. I see in his summary of evidence he says that he would be in favour of having power to award compensation for animals slaughtered?—Yes.

11332. I presume he means tubercular disease of any part of the body as well as the udder?—Yes.

11333. Have any precautions ever been undertaken, so far as you know, to secure cleanliness?—Not in the urban district. Mr. Mark, our veterinary inspector, has never reported such a case.

11334. Would you be in favour of licensing cow-lepers?—I would.

11335. And would you license them on much the same principle as spirit grocers are licensed—have their premises inspected, and the character of the applicant considered, before granting a licence?—Yes, and if he did not conduct his licensed premises properly I would withdraw his licence.

11336. Do you think that there is a marked difficulty on the part of the poor to procure milk when they want it, and have money to buy?—Yes, I think the poor have great difficulty in getting milk. It comes from different sources. It is owing to the small quantity they require, and the hour at which they require it. Most of these poor people are occupied at the mills, and are not home when the milk-cart goes round. Unless small purveyors provide them they have no means of getting a supply at all. There is no connection between the milkmen and the consumers in this case.

11337. They are not what you would call regular customers?—No. They buy whenever they can get it, and sometimes when they want a pennyworth they find a difficulty in getting it; but if the milkmen would establish a sort of depot in the town and run it on proper lines they would find a very large demand for the milk, not only amongst the poor, but the well-to-do. I do not remember having seen an advertisement in a local newspaper that milkmen were prepared to supply milk in the urban district. At the same time, I know that even amongst the well-to-do people there is a considerable scarcity, and if the milkmen who are supplying them at present ceased, they are at their wits' end to know where to go to. It occurred to me, if milkmen opened a depot in the town, and had their cattle regularly examined, and had that fact advertised, I think they would find a very large demand for milk. The people, rich and poor, would know where to go for their milk, and I think the milkmen would get remunerative prices. Failing such an establishment as that, I would say it is almost the duty of the local authority to establish a milk depot. I am aware that we have no statutory power that would enable us to do so, but we should seek these powers.

11338. You think it would be a proper expenditure of public money?—Yes, because the want of a proper milk supply might lead to a serious outbreak of infectious disease.

11339. The case I think you are making out is an absolute justification for the expenditure of public money?—It is a sort of insurance.

11340. Lady EVERARD.—I take it from your evidence just given that you think that it would be very desirable if milk depots could be started in Newry?—Yes.

11341. Where the poor could go and buy their milk?—Yes.

11342. Do you know of such depots having been established by private enterprise?—I heard it stated at this inquiry.

11343. We have had evidence that these depots are doing remarkably well?—And I am of opinion that they would do remarkably well if established in Newry, if they were run on proper lines.

11344. In Newry there is a depot in existence, and the St. Vincent de Paul Society buy tickets, each representing a pint of milk, and also the Women's National Health Association, and give them to the poor?—It would be a good idea.

11345. We had evidence in Dublin from a doctor in Melbourne, who says that in his city a scheme was commenced for providing milk for the children of the poor by private enterprise, and it is now subsidised by the Government. They supply the children of the poor with milk in the summer in order to prevent the enormous death-rate amongst the young. That seems a proper expenditure of public money?—Yes.

11346. And this scheme in Melbourne has had an enormous effect on the death-rate?—Yes.

11347. I know the St. Vincent de Paul Society distribute tickets amongst the poor in connection with some depots in this country, and also the Women's National Health Association, and I am sure if a depot were established in Newry they would also distribute tickets for milk. In Newry, also, there is a very successful scheme in operation?—We had samples taken from these small milk-vendors in the town who supply the poor, and sent them to Sir Charles Cameron. We have not had any reports from him that we did justify us in prosecuting these people for selling poor milk. The samples are taken in Newry principally by the police. On an average, they would take about twelve samples in the year of sweet milk. They take samples of buttermilk often. The reason they do not take samples of sweet milk more frequently is because there has been no report for five years to warrant a prosecution. In the case of buttermilk they have had seven prosecutions.

11348. What fines were imposed?—10s. and costs.

11349. The CHAIRMAN.—There is no kiosk or provision for policemen for sending forward samples of sweet milk?—Our staff also take samples, and we have not found the sweet milk to be below the legal standard.

11350. You have no case where a sample of sweet milk was certified below the legal standard?—Not for seven years.

11351. Lady EVERARD.—And do they go to the small vendors who supply the poor?—They do.

11352. Sir STEWART WOOLHOUSE.—Are these samples sent to Dublin also to Sir Charles Cameron—the samples taken by your inspector?—Yes. He is the analyst for the county.

11353. Mr. WILSON.—You have no systematic bacteriological analysis?—No.

11354. Especially for tuberculosis?—Up to the present we have not, because there was no bacteriologist for the county. County Down County Council has now appointed Professor Wilson, and I have no doubt we will avail of his services.

11355. Would you be in favour of licensing dairy premises?—I would.

11356. And taking the licence from any man who was not keeping his premises in proper condition?—Yes.

11357. Or selling milk in a satisfactory state?—Yes.

11358. As regards your evidence as to the milk depot, what would your opinion, speaking generally, be as to the suitability of a local authority controlling such a business as a milk depot?—I think it could be better managed by the dairymen themselves if they combined to do it; but I think that the local authority could do such a thing; of course, it might be more expensive. They would have to appoint officers to carry out all this work, and it would mean that they would not be in a position to sell the milk at such a low rate.

11359. Your point is that private enterprise is desirable, and that there is an opening for it?—Yes.

11360. But failing private enterprise you think that the community should step in?—Yes. That is in the same way that the urban authority runs the public abattoir.

11361. Mr. CAMPBELL.—What exactly is your appointment to the Urban Council?—I am Town Clerk of the Borough of Newry, and the Executive Sanitary Officer, and Registrar of dairies and cowbuds.

11362. As Executive Sanitary Officer do you in any way lead the milk question?—Of course we do.

11345. I mean in that capacity?—When cases of infectious diseases are reported to me I make inquiries as to the source of the milk supply, and if any suspicion arises I bring the matter under the notice of the Medical Officers of Health, and have further inquiries made.

11346. Do you go into the country for that purpose?—Yes. In the particular case of which I have spoken, where the suspicion attached to a certain dairy, the dairy was in the country.

11347. Who was the veterinary officer in the country?—The same veterinary officer as acts for the urban district. That simplifies matters a good deal.

11348. Is it the one veterinary officer?—Yes.

11349. With regard to your position as registrar of dunes and cowbush, do you register them each year?

—Yes. The way we work is this. At the beginning we get the parties to send in applications for registration, and they were then registered. If they contravene to keep their dunes and cowbush in proper order that registration was not withdrawn or interfered with. Our books were revised at the end of each year, and we mark off those who had ceased to sell and add new persons who come along.

11350. Is it part of your duty to go to the keepers of the cows and examine their cows?—No, it is not my duty to see the cattle. That would be the veterinary inspector's and the dairy inspector's duty.

11351. Who is the dairy inspector?—James Connolly. He is a sub-sanitary officer.

11352. And his business is to supplement the work of the veterinary inspector?—He goes along with the veterinary inspector in his inspections, and if any alterations are recommended by the veterinary inspector the dairy inspector follows to see that those improvements are carried out.

11353. The dairy inspector has no power to do anything?—He would report to me and I would send notices.

11354. You and the sub-sanitary officer have power to serve notices upon the farmers?—Yes.

11355. And who sets up the standard of right and wrong?—You or the sub-sanitary officer?—In nearly all cases it is the veterinary inspector. In very few cases have we found it necessary to serve notices—except through the veterinary inspector.

11356. It is the veterinary inspector who sets up the standard?—Yes.

11357. Has the Council as a body given him any instructions with regard to that?—No. They gave him

a copy of the Order and any leaflets that have been issued by the Local Government Board or the Department of Agriculture.

11358. And let him set up his own standards?—Yes.

11359. You talk about surprise visits. Are not all inspections surprise visits?—Yes, all these are surprise visits. The statement about surprise visits was made, not by me, but by Mr. Marks in his summary of evidence.

11360. Yes. With regard to buttermilk, is that very much used in Newry?—If it could be procured it would be used much more generally. It is very difficult to procure at present.

11361. Where does it come from?—From the rural districts.

11362. Is there buttermilk here?—Yes.

11363. And are the persons who churn their butter bringing in butter and buttermilk?—All the persons who make butter do not bring in their buttermilk in Newry; in fact, only a few of them do so.

11364. Is it sold in the streets out of the churn?—Yes.

11365. Do you know what price is charged for it?—No.

11366. Do you know the standard for the quality of buttermilk?—The police take samples and send them to Sir Charles Cameron. I cannot tell you for the moment what the standard is.

11367. Do you know the standard for pure milk?—I think it is 3.2 per cent. of butter fat.

11368. It is three per cent. of butter fat; but you do not know the standard of buttermilk?—No.

11369. And the buttermilkmen are not subjected to any difficulties in regard to the carrying on of their trade?—No.

11370. Does any separated milk come into the town?—I do not think so.

11371. Lady EXAMINER.—Is it the case that all the reports of the veterinary inspector have to be forwarded through the medical officer?—No. The veterinary inspector supplies to the Council, at their monthly meeting, a report of the premises he has inspected during the preceding month and makes recommendations, and we see that those recommendations are put into effect.

11372. The Medical Officer of Health has nothing to say to it?—Not to the Dairies Order, except in case of an outbreak of infectious disease.

11373. Is it your opinion that all the by-products of milk should be subject to the same regulations as new milk?—I think so.

Mr. T. P. WILKES CHAIRMAN.

11374. The CHAIRMAN.—You are Treasurer of the Newry Agricultural Show?—Yes.

11375. Are you interested in agriculture?—Not very much directly.

11376. Are you a resident in the town?—Yes, for forty years.

11377. Does your knowledge enable you to state whether or not the milk supply of Newry is more generous to-day than it was ten or twelve years ago?—I think it is less generous.

11378. Do you believe that a difficulty exists in procuring milk in the case of poor people who have money to buy?—Well, I do not think so.

11379. You do not think the small householders would have any difficulty in getting milk if they had the money to buy?—We have less distribution of milk than there was formerly, but I think the man with money can buy a reasonably fair supply.

11380. We all know that the working classes are not very regular in their habits in regard to the time at which they make their purchases, and for various reasons the housekeeper may be from home when the milk-cart goes round, and later in the day it is discovered that there is no milk in the house. Can such a person go out into the street and turn into a shop where milk would be secured?—That is the weak point. There is a difficulty there.

11381. Have you thought of any scheme whereby that difficulty would be avoided?—I have an idea that a better provision might be made for the distribution by placing, say, a general milk-shop in each ward.

11382. Would you suggest that if a commercial enterprise did not carry out that idea, it would be the duty of the local authority to undertake it?—I think they might, sir.

11383. And if it did entail a certain amount of expenditure you think it would be a proper charge on public funds?—I think it is most desirable that the poor should have an ample supply of milk, which I am not satisfied they are getting at present.

11384. You believe that the children of the poor are not getting a sufficient quantity of milk food, which is desirable to develop them into healthy men and women?—I know they are not. They are using substitutes, such as condensed milk, and they use licorice and golden syrup, and "Sewana" used to be used pretty much, but not now.

11385. There are not ideal foods for children?—No.

11386. It has been suggested to us that the municipal authority might themselves undertake the establishment of depots for the distribution of milk. Do you think the condition of Newry is sufficiently acute at the present time to warrant that being done?—I hardly think so. I think it could be done better by private enterprise than under the Council.

11387. Private enterprise has not done so up to the present, whatever may be in the way of time?—They do not find it sufficiently remunerative.

11388. Do you think that those in charge of the children of the working classes appreciate the value of milk as a food for their children?—I do not believe that they do.

11389. And if they did they would make a better effort to procure it?—They require education in that respect. There are young mothers and wives of labouring men who do not study the bringing up of children, and the real nutritious food which can only be found in milk for children.

11390. And this must have an injurious effect on the whole of the community at large?—Yes, decidedly.

11394. And while your public authorities never hesitate to provide hospital accommodation and medical aid and nursing for the poor when they are ill, it seems to be thought as rather an innovation to try and prevent the illnesses from which these unfortunate people suffer, and which are directly consequent on the food on which they are brought up?—You refer to the Council.

11395. I am speaking of all Public Health Authorities. The public mind has become educated to warrant the expenditure of public money in having disinfection carried out in the case of infectious diseases and ambulances to remove patients to the hospitals, and sources for hospitals; but apparently no one has thought of adopting preventive or curative measures?—We have not done so.

11396. Newry has not a double dose of original sin in that respect. I want your opinion as an intelligent member of the community. Do you not think it would be a good thing if an effort was made to bring up the young generation in a healthy condition?—Yes. I think we have need of schools for children, and instruction for young mothers would be a very desirable assistance in bringing up families.

11397. And if this is a necessity in the ordinary communities it seems to be a still more burning one here, where the mothers of very young children leave them at home and go into the mills?—Yes. That is a very serious matter indeed.

11398. And these children do not get the maternal care that they have a right to expect at a very tender age?—They are very often left in charge of young children who are incompetent to mind them. I can give you an instance of a case I saw last week at 9.30 p.m. of a little girl with a baby in her arms.

11399. And perhaps not very well clothed?—Poorly clad, and trying to amuse the children by singing to them, and not strong enough to carry them.

11400. A touching sight indeed. Have you any experience of mill-workers?—No, I cannot say I have.

11401. We were told by a former witness that an effort was made by the mill-owners, which was much to their credit, to provide their employees with a wholesome meal at the mill, but owing to want of co-operation on the part of the workers it has broken down?—It has not broken down at Beasbrook, where the owners of the mill provide for a meal at a nominal cost.

11402. But so far as Newry mills are concerned, I am rather afraid it has broken down there?—I do not know what the practice is in Newry.

11403. Would you not think it a very judicious movement on the part of the mill-owners, and distinctly humanitarian, to make such provision?—Yes. It is done in Beasbrook. It would be a step in the right direction.

11404. Lady EVELAND.—Is that meal provided by the Beasbrook Company?—Yes; but it is not given entirely gratuitously. Mr. Richardson, the owner of the Beasbrook Spring Mills, does not make it a profitable transaction.

11405. The CHAIRMAN.—It is only the price of the materials wholesale he charges?—Yes. The company provides the cooks and the dining-hall.

11406. It seems a most benevolent undertaking, and I only wish it was more general?—Yes.

11407. Lady EVELAND.—Is there a large supply of butter-milk come into Newry?—I do not think the supply is adequate to the demand.

11408. We have had evidence about there being prosecutions with regard to butter-milk?—Yes; but in my opinion some of them have been unwarranted. I consider there is a necessity for a certain proportion of water to be added for churning purposes.

11409. What is the legal standard for butter-milk?—I cannot say at the moment.

11410. Do the poor use butter-milk for baking—do they bake their own bread?—Some do. The bakers use some of it for their own bread.

11411. Do you find there is a big increase in the sale of baker's white bread?—Yes. I think the sale generally has increased.

11412. Do you think that the use of brown bread is going down?—It has not been very popular.

11413. I mean the whole meal bread?—It has not

been very popular in this district. I do not think it has gone down. So far as my experience is concerned, it has gone up.

11414. Mr. WILLIAMS.—I would like you would give us an idea of the policy of the Newry Agricultural Show with regard to the encouragement of dairy cattle?—It has been very much before the minds of the Society of late years, and they have been giving prizes to farmers for the best milking cows. Last year there were five exhibited and four prizes were given. We got 25 from the Department.

11415. What points do you insist upon as being important for that class?—Quality and quantity of milk.

11416. Produced during the days of the Show?—Milked in the Show yards.

11417. That would leave the possibility of getting a cow that gives an enormous flow of milk for a short time and goes dry very soon?—I cannot say what point the judges would give in that direction. I expect they would judge from the appearance of the udder of the quantity of the milk that is given.

11418. Have you thought over at all of the possibility of giving the dairy cow prizes on the basis of her records during the lactation period or for the twelve months?—The Show Committee is going to go on records.

11419. Do I understand that the Show may appoint an officer to inspect the records of the farmers of the neighbourhood and have a check on the individual records?—We had a meeting of farmers, and several of them are keeping the records of each cow.

11420. That record system is being checked by an officer of the Department?—Yes.

11421. So for your purpose you would take the milk records kept by the farmers and checked by the Department, and then, plus the appearance of a cow, would be the basis of giving a prize?—Yes.

11422. Mr. CAMPBELL.—Have you discussed how much you would give for milk and how much for appearance?—No.

11423. Your committee has not discussed that?—I do not think there is any phase of this question which has not been discussed.

11424. Do you know if that phase was discussed?—No.

11425. How often do they milk these cows that come in to the Show?—Once.

11426. Is it a one-day Show?—Yes.

11427. Do they stack them the night before?—I cannot say.

11428. You are well acquainted with agriculture?—Yes.

11429. Have you followed at all the question of the relations between the labourer and the farmer in the North of Ireland; that is to say, the relations between them as regards the system of hiring and housing—what used to be the custom with regard to that?—I do not know that there was any fixed custom. I know we have hiring tales at which boys and girls have been hired for the year or half-year, as the case may be.

11430. What about the married man?—The married man, as a rule, find homes in their particular neighbourhoods, perhaps with the farmers with whom they were for years.

11431. And does the cottage in which they live belong to the farmer?—In some cases they do, and in some cases not.

11432. In the cases where they do not, who owns the cottage?—I do not know. I have not any detailed information.

11433. Miss McNEILL.—Has there ever been any scheme, in addition to that which has been carried out in Beasbrook, to enable married workers—I mean workers who are nursing mothers—to have their children near them. In certain mills on the Continent and America, where a fairly large proportion of the employees are married women nursing their children, nurseries are provided, not in the nature of crèches, which encourage artificial feeding, but they provide nurseries. Do you know if such a scheme has ever been tried in the mills in the North of Ireland?—I do not know of any such scheme being in operation.

11434. Has it ever been considered?—I do not think so.

11435. Do you think that scheme would be advisable?—It would be more a matter for the mill-owners. I cannot tell you how it would work out from my own knowledge.

11433. The CHAIRMAN.—You are Clerk of the Newry Rural District Council?—Yes, of Council No. 1 and No. 2, and of Newry Union.

11434. You are also interested in the Newry Agricultural Show?—Yes. I have been one of the hon. members since the Society was formed.

11435. You would have a fairly diversified knowledge of the question into which this Commission is inquiring?—I know a little about it, and I am also a farmer.

11436. We have learned indirectly, perhaps rather than directly, what steps are taken by the Rural Council to put the Dames and Comstock Order into operation. Is there any information you can give us that has not already been submitted? We have been informed that you employ a Veterinary Inspector to make an inspection of both districts, and that the provisions of the Order are fairly well administered?—In the Newry No. 2 District—that is the district in which the Whitesome Creamery is situated—we have 287 registered cow-keepers, that is the County Armagh portion of our district.

11437. How many cows would that represent?—On an average they would have about four cows each. We have some very large dairies. In the largest they would keep about forty cows. We have also some other large dairies in that district.

11438. Are they mainly supplied to the Whitesome Creamery?—A small portion are.

11439. What becomes of the milk of the large dairies?—In Banbrook they supply it to the mill hands at 2d. a quart in winter and summer. They may have recently made a slight increase, but I have not heard of it. I know that the other dairies in the district complained of the action of the Banbrook people in selling the milk so cheap.

11440. Is this subsidised by the mill-owners?—The mill-owners have cows of their own.

11441. That is not what one would regard as a purely commercial transaction?—It is not in the business way a commercial transaction. No more generous man lives in Ireland than Mr. Richardson, the mill-owner.

11442. Really it seems to me a perfectly ridiculous thing that his action should have caused unfavourable comment. I only wish we had the number of such men increased?—It is only the local dairymen that object.

11443. That is a purely selfish view. With regard to the reports received from your Veterinary Surgeon, has attention ever been directed to the fact that suspicious animals were found in the herds?—Yes.

11444. What practice would be followed with regard to them?—We persuade the owners to get rid of them.

11445. You find them unsaleable?—Yes. We never have the least trouble.

11446. And no Order has ever been made for the compulsory slaughter of an animal?—No. There is no need yet.

11447. Are any samples taken in the district to test the quality of the milk by any officer of yours?—No. We have three Dairy Inspectors and one Veterinary Inspector. The three Dairy Inspectors, if they see anything wrong, call the attention of the Veterinary Inspector to it. He is very energetic. He discharges his duties remarkably well.

11448. And you have reason to believe that the provisions of the Order are enforced with regularity?—We had a great deal of trouble with the Whitesome Creamery supplies. They complained bitterly about the Order at first, and my Council did not want to enforce it too harshly in the beginning. We gave them two summers, and we found that a great many of them would do nothing, and we were obliged to prosecute a good many of them.

11449. What was the result of the prosecutions—was an order made for carrying out the improvements?—Yes, in every case. On one occasion we had to prosecute 84 people who refused to apply to have their dairies registered.

11450. What co-operation did you receive from the magistrates—did they assist you?—Yes.

11451. Did you find it was necessary at any subsequent period to continue the prosecution?—We had to prosecute five people a second time. We picked out five of the worst cases and prosecuted them, and the magistrates imposed substantial fines. It had a very good effect on the district.

11452. That is rather satisfactory and helpful in the enforcement of the provisions of the Order?—Yes. We have a few people in the County Armagh portion of the district who supply Belfast, and in No. 1 District there are seventy-two cow-keepers registered.

11453. Mr. WILSON.—Before you pass away from the creamery supplies—was the result of your prosecutions to reduce the number of supplies to the creamery?—I think a few of the very worst cases—people with very unsuitable premises—gave up supplying milk.

11454. What happened to their milk?—They sold it at home.

11455. Drink it?—Yes, and some churned it into butter.

11456. Would you not consider that a hardship in the better lands that is carried on in the creamery?—I am very strongly of opinion that butter should be also included under the Order.

11457. You would bring those men who make butter in their houses under the provisions of the Order?—Yes, and my District Council, entirely composed of farmers, suggested to the Local Government Board that that should be done.

11458. The CHAIRMAN.—It has been suggested to the Commission that the pastures in this district are one and the standard of milk difficult to maintain—I would not agree with that. I think it is reasonably good pasture land, and our cows are well fed.

11459. Do you keep any milk records?—I do; but I have only lately started that, since so much attention has been directed to the milk question. We have had a great many meetings of our local Creamery Society, and in order to induce people to keep records I did it myself.

11460. Do you ever have your milk subjected to a test for butter fat?—In the workhouse we use a great deal of milk. The milk is tested two or three times a week for butter fat.

11461. What standard does it reach?—We keep a small number of cows at the workhouse, and we have also a contract for the supply of milk. Our standard is 92, and if at any time it falls below that we inquire the reason why.

11462. Did that often happen?—No. It only happened twice in three years, and the contractor was obliged to give an explanation.

11463. With regard to the cows that you keep yourself, do you ever test the butter fat?—Yes.

11464. Do you ever find it goes below standard?—We find usually that we get better milk from the contractor than we produce ourselves. It is only fair to say that.

11465. Supposing the milk from the cows that you keep in the workhouse was offered for sale in Newry, and that samples were taken and sent for analysis, in all probability you might sometimes be liable to prosecution?—I have known our milk to fall below the standard at times, but not very much.

11466. Did you ever find it fall to 2-93?—No, never below 3 per cent.

11467. You would not be subjected to a penalty in that case?—No. If we find our own cows do not give milk up to the standard we ask the workhouse master for an explanation.

11468. It has been suggested to the Commission that the milk yielding properties of our cows have deteriorated?—The best of our cows are shipped to England. We have nine or ten people who buy nothing else but the very best cows we have, and that are sent to England, and we lose not only the cows, but the calves also.

11469. And thereby the stock of the country is deteriorated?—No doubt. I am mainly anxious that we should keep the better calves.

11470. With regard to the milk yield generally, do you think the cow is a less profitable animal than the cow of twenty years ago?—When I was a little boy my father kept a large number of cows, and I think our cows are not as good as they used to be. I remember when my father kept an Alderney or a half Alderney cow, and they gave a very large supply of milk, and none of its cows are as good as those.

11471. Is that part of a sentimental declaration that is very often made with regard to the old days?—No. I think the present reason why we have not so many good cows in the country is because these dealers take away the very best we have and send them to England. The temptation to a small farmer to sell a good cow for £20 is very strong.

11472. The pursuit of a policy of that kind would naturally deteriorate the milk-yielding properties of the aggregate number of cows?—Yes. That is why we have not as good cows as we might have in the country, because the best are shipped away.

11473. In the old days the export trade was not what it is now. The same drainage was not going on?—No.

11474. Have you any views as to how the milk-yielding properties of the cow might be increased, by the infusion of new blood or any other method?—Yes. I got a premium bull myself. The first premium bull I got was very good. I sold him, I had two others. I got a bull from a milking strain, and I have that bull at the present time.

11475. You have had no opportunity of testing what the result would be?—No. I have no experience yet.

11476. Was it an Irish-bred bull you bought?—Yes.

11477. Did you find any difficulty in tracing the record of his ancestors with regard to the milk product?—No. The bull was bred by the late Mr. Annett, who had a very small select herd of pure-bred shorthorns, and he was most particular about the milk, and he was able to give me all the information I wanted about this bull.

11478. He was one of those men who took up the question of increasing the milk before it became such a burning question?—Yes. Mr. Annett told me that the people who bought his bulls complimented him on the fact that they had improved the milking properties. He had the best herd of pure-bred shorthorns in the district.

11479. What standard did they reach?—The milk yield was a great deal more than shorthorns are credited with.

11480. Seven hundred gallons?—More.

11481. Have you any experience of pure-bred shorthorns yourself?—Not much.

11482. With regard to your Dairy Class in Newry Show, what course do you propose to follow in order to carry out the view the committee entertain of offering prizes on milking records?—Our principle in the past has been to get the cows in the night before the Show and have them thoroughly milked by our own men. We look the cows up for the night, and we have the cows milked in the presence of the judges, and we have always regarded that as fair to everyone, and it is the best we can do.

11483. Do you propose to develop that by giving the milk records that have been kept and putting them before the judges?—Yes. We propose forming a number of milk-testing stations to have records checked by a local officer, and introduced by the Department's Inspector, to find out the milk yield of the cow.

11484. The introduction of milk records is a matter of recent growth?—Yes.

11485. Do you think it is likely to develop, and what is your opinion as regards its effect—do you think it will have a beneficial effect on the cowards of the country?—We hope so; but the farmers are not keen on it. The general run of farmers about here think it is too much trouble.

11486. It is really an educational process, and you cannot expect the people to come in at once; but when they find their neighbours are doing it and deriving profit from it, the keeping of the records will be more general?—Yes. I am absolutely convinced that a great many cows that we have in this country are not worth their food. They are uneconomical.

11487. It was suggested to us in Belfast by a person interested in the trade that he thought it would be a very desirable thing if special prizes were offered at local Shows for bulls the offspring of cows with milking records, and that they should be in a class absolutely apart from pure-bred bulls?—I would agree with that.

11488. I think it is a very good suggestion indeed, because, obviously, inserting such a class as that in your Show programme would be information to the public generally that attention was being concentrated on the question, and the people would be interested in it, and in all probability some would become co-operators. This gentleman was of opinion that the prizes at the outset should be substantial in order to induce a larger number to follow the conditions necessary to secure this particular breed?—I would thoroughly agree to give prizes for bulls of that class. We have only a small number of cows registered under the Department Scheme, but the number is growing.

11489. You are in a better position than they are in the other end of the county, because in Newtownards

the people do not seem to understand the scheme?—We have a society here known as the Jerrettstown Farmers' Association, and they took the matter up, and the keeping of milk records is spreading.

11490. You said that numbers of cows kept are by no means profitable. I suppose the people who own these cows are ignorant of their milk-yielding properties?—If they knew what they gave they would give up keeping them.

11491. Mr. WILSON.—When you keep milk records you know that one cow is giving you 900 gallons and the next cow 400 gallons, and you know which to sell?—Yes.

11492. The CHURMAN.—Do you think the majority of cow-keepers led to realise the animal that is profitable and the animal that is unprofitable to keep?—Yes.

11493. The majority of people often think if a cow gives a liberal flow for three months that she is a good milking cow, and lose sight of the fact that for four or five months she is practically a burden on the herd?—I suppose that happens every day of the week all over our district.

11494. With regard to the milk supply to the poor in the rural district, do you think there is a shortage there?—I am quite sure there is. In the district in which I live I usually keep four labourers. Those men cannot get milk at all unless I supply them. I know one man that I had, and he used not to get milk from me. He has ten children. He and his wife and ten children were getting a pint of milk in a day, and that must have been going on for a long time. I found out about it, and we were able to supply him. In the case of the other men I have the milk is included in the wages. This man was only getting a pint, and had great trouble even in getting it. That man has got a cow of his own now.

11495. That is a very desirable improvement, certainly?—Yes.

11496. His cow unfortunately would not be an isolated case?—No. It is general all over the country amongst the labouring classes.

11497. Would that apply to the County Armagh as well as to County Down?—In the County Armagh there are not so many married men. I am talking of the married men. In Armagh the system is to employ the man who lives in their employer's house.

11498. With regard to occupants of labourers' cottages built under the Act, how would they be supplied?—We have only a very small number of cottages in the Union. We have not got a hundred at all yet.

11499. Do you think that the fact of getting cottages and that they have a fairly of tenure has in any degree increased their difficulty in getting their milk supply from their employers?—Yes; it is that a man is working with a farmer and he is getting milk from that farmer. He loses his employment and he is working somewhere else, and he would have trouble in getting milk.

11500. And you think that the independence that has been secured by the labourer in his home has some corresponding disadvantage in alienating the sympathy that has existed between himself and his employer?—I believe so.

11501. And that has in some degree intensified the difficulty?—Yes.

11502. Are goats kept in the district?—Yes, most of our labouring men keep goats—those living in the labourers' cottages.

11503. But goats supply milk only for a limited time?—Yes.

11504. And in the winter season none is available?—It is very hard for them to get it.

11505. Has any effort been made to improve the breed of goats in the district?—Mr. Small, who was here yesterday, made some little effort.

11506. Have you given prizes for goats at your Show?—Yes, every year, and we have always very good entries.

11507. And you think it improves their chances of better treatment and care to offer the prizes?—I think so.

11508. Do you subject them to a milk test?—No. The approximate of the goat is taken into account as a milk yielder. In fact, I think the judges almost ignore everything else. I always notice in the Show that the goat that apparently can supply the most milk gets the prize.

11509. There are a good number of shorthorn heads in the County Down?—Yes. I think the premium bulls are blamed too much. We have in this district

only a very small number of premium bulls, and I do not think they have done the damage that people say. In fact they have done a great deal of good. It is rubbish, this talk about premium bulls. Our two rural districts are overrun by inferior bulls.

11510. The stock of the country is not, as a rule, produced to any considerable extent by the premium bull at all?—That is so. The number of premium bulls in the district is very small. There must be two hundred other bulls to one premium bull in the district. Mr. McEvoy has a premium bull for thirty years, and he will tell you all about it.

11511. Lady Eversham.—Where are the cows shipped from to England and Liverpool?—We have a direct sailing from Newry to Liverpool, and we have a nightly sailing from Greenore.

11512. You cannot give us statistics of how many are shipped?—No.

11513. Mr. Wmson.—Would they be obtainable?—I think so. Mr. Smith, who is present, may be able to give you information as to the shipping from Newry to Liverpool, but I understand most of the cattle go by Greenore. I think we could get the Guinness figures also.

11514. The CHAIRMAN.—The statement has been frequently made before us that the English and Scotch buyers come over and purchase the best cattle?—Yes.

11515. Mr. CAMPBELL.—That is a good thing?—It is. I don't disagree with it.

11516. It is the very thing we are working for, to get a good animal for export?—But I am very sorry to see these cows going away and their calves lost.

11517. Are you not more pleased to see the gold coming in?—I would like to see the good cows at home.

11518. Lady Eversham.—When in Belfast we got statistics that 17,360 per annum of milkers or potential milkers were exported?—Yes.

11519. That is an enormous strain on the country?—Yes. We have a nightly shipping from Greenore.

11520. How many labourers' cottages do you say you have in your two Unions?—A very small number; we only started about three or four years ago.

11521. Are the labourers you speak of finding any difficulty in getting grazing for a cow if they had one?—I only know one man in a Union cottage having a cow, and I don't think he has any trouble. If the labourers were able to get cows it would be easy to get grazing.

11522. What is the grazing rate?—There is no grazing here. There is only one demesne where they take grazing and that is for young cattle.

11523. Do you think the land could be got for grazing?—Yes, it would be very easy.

11524. Have you the eleven months' system second best?—Not very much.

11525. The farms here are not very large?—We have, I think, so far as I recollect, in the Union of Newry between 23,000 and 25,000 holdings. That includes the town. We have a very large number of small farmers in the Union.

11526. The CHAIRMAN.—And no stretches?—No.

11527. Lady Eversham.—You stated that the Inspector found cows that would not pass. What became of these?—I think most of them went to the knacker's yard which was established recently. They got a small price for them.

11528. The CHAIRMAN.—I hope there is no meat perveyed from that place?—I don't know what they do with the meat. They kill hoes. The meat is shipped away. It is generally thought it is made into German sausages. I know that the demand for German sausages has lessened in the town of Newry.

11529. Lady Eversham.—Don't you think that a person should not have power to sell a diseased cow?—I think so, but the owner should be compensated.

11530. Do you consider that if the £10 limit was raised it would be the means of inducing the farmers if they had a diseased cow to declare it?—Yes.

11531. The CHAIRMAN.—Would you pay the full compensation?—They should get two-thirds of the market value of the animal.

11532. You think that would be a reasonable compensation?—Yes, and it would induce the people to come in if they suspected that their cows were in bad health.

11533. Had you any breed goats at the Newry Show?—Only one, and that did not get the prize.

11534. We don't mind about the prize. The object is to get good milkers. The advantage of these foreign goats is that they kid at all times?—Yes.

11535. Sir STEWART WOOLLSHIRE.—In the case of a poor man who has one of two cows, and who is tempted occasionally by high prices to sell his good cow, do you think if there was a system of insurance adopted that it would be of advantage?—I believe nothing would do the country so much good as if we could get a universal system of insurance on live stock. Three or four of my cattle died. They were not insured. I insured only two animals—pure-bred and thorough-bred cattle.

11536. Why not insure the rest of the cattle—are the rates prohibitive?—The farmers have never considered the matter. The vast bulk of the farmers in this district do not insure their houses. Some of the largest farmers in the district have not a penny of insurance on their farm buildings.

11537. There is great scope for agricultural insurance?—I am absolutely convinced of that, and it would be a good thing for the farmers if they could get a universal system of insurance.

11538. Lady Eversham.—What do you pay?—Five per cent on the premium paid.

11539. You could not pay that on all your stock?—No.

11540. If it could be done for 5s. a head, would it pay?—Yes. This year I must have sustained a loss of at least £30, and it would not have cost me nearly so much if I had my cattle insured.

11541. Is there much abortion in the district?—No.

11542. Is there any disease among calves?—There is—white scour and bluetongue.

11543. The CHAIRMAN.—What did your stock die from?—Some from scour.

11544. Mr. Wmson.—Is tuberculosis prevalent amongst cattle in this neighbourhood?—I am afraid it is.

11545. With regard to the Veterinary Inspector in the various public bodies you belong to, have the Inspectors reported cases of tuberculosis of the udder?—Yes. The farmers don't test their cattle. I don't think there are ten tested cows in this Union.

11546. When your Veterinary Inspector is suspicious about a cow what does he do?—He tells the owner not to use the milk of the cow, to isolate her and keep her under observation; if the cow gets worse, he advises the owner to get rid of her.

11547. Don't you think that is rather a dangerous way to treat a suspicious cow—dangerous to the public health?—Yes. I think they should be destroyed and the owner compensated.

11548. With regard to compensation, would you agree with this—that when a man brought a beast voluntarily for veterinary inspection, and the beast was found to be diseased, he should then receive all compensation; but, on the other hand, if the veterinary inspector discovered a diseased beast in the course of his ordinary rounds, that the owner should receive no compensation or very little?—It would be hard to punish some people because they are stupid. Perhaps it would be wise to give some slight extra inducement to the person who does it voluntarily.

11549. We want to get these animals brought out as far as possible voluntarily?—Yes.

11550. That the moment a man has a suspicion that anything is wrong that he would bring out the animal without any fear of financial loss?—Yes.

11551. That when the education has got more widely spread that it would be regarded as almost a criminal thing to keep a seriously infected animal in his herd?—That is so.

11552. Mr. CAMPBELL.—Do you know exactly, and do the farmers know, the provision that has been made to test milk cows?—Do you mean the Department's scheme?

11553. Yes?—The farmers who live about the neighbourhood of Newry and Jerroldstown know all about it, but in other districts of the Union, I fear, they know very little about it.

11554. Can you tell me what are the provisions that have been made by the Department for the testing of cows?—I heard the matter discussed a couple of years ago. The Department invite people to send in applications and they had their cows tested. That is all I know about it personally.

11555. They apply directly to the Department?—So far as I know, they do.

11556. And the Department sends down an Inspector to examine their herd?—That is so, I believe. They send down an Inspector from time to time.

11577. I want to know if the provisions of that scheme were well known, and I wanted to test it on you?—On the whole, the people don't know very much about it except in Jersey and Newry.

11578. There are two methods. One is where the farmer applies directly and individually, and the cows are examined as to conformation. Then the farmer keeps a record for a year and the best cows are put on the register. That is one way. The other way is that the farmers form an association to keep milk records, and then the Department Inspectors come down and select the best cows?—I think the provisions of these two schemes are known in the district I have mentioned.

11579. There is a business in the minds of people I meet as to this matter?—That is so. Generally speaking, the farmers are not acquainted with the scheme.

11580. Taking these two methods, you will understand that the first method must be a very expensive method, because you have got to go to the individual farmer and inspect his cow and take samples of milk. The other method is where an association of farmers do it themselves. Could not the Newry Agricultural Show become a cow-testing association?—That is what we propose to do. We propose to form in various districts local cow-testing associations.

11581. But cannot you be the parent body?—We propose to do that. The great trouble is to get farmers interested. It will take a little time before we can do that.

11582. Is it your proposal to keep the record book in your own society, or are you only going to send them to the Department?—We propose to send the Department in every possible way, because we believe the scheme is a good one. We propose to get in each district a number of farmers interested—to get some person that knows the district to volunteer to act as secretary of the association free of cost, and in that way there would be practically no expense.

11583. Having formed your association, are you then going to inspect each farmer and see that he is keeping these records?—Yes.

11584. And are you going to see that the milk is analysed?—Yes.

11585. Are you going to do that yourselves, or do you intend asking the Department to do it?—We propose to do it ourselves.

11586. The conditions would be that the farmer would keep a record of his cows' yield, and then you would put on the register those animals that had in addition to a good milk yield good conformation?—Yes.

11587. You propose to keep that register yourself?—Yes.

11588. And if the rest of the country did that, 250 or 350 cow-testing associations would be established—there are 250 or 350 Agricultural Societies in the country. There would be different standards. You would have a high standard perhaps, and in another part of the country the standard would be very low?—We are trying to get a number of local associations formed because we believe that our society cannot work one association over the whole district.

11589. Will not your society be the society to register the cows?—The Newry Agricultural Show is to be the parent and to be responsible and to check the work of the cow-testing associations.

11590. And to certify to buyers or others that these are animals that have sprung from selected cows and selected bulls?—That is so.

11591. The other way would be for the Department to be the parent society?—I think it is better that the local society should be the parent.

11592. Mr. Wintress—You would need to standardise the record books?—Yes. The Department has prescribed rules.

11593. Mr. CAMPBELL.—Your idea is that the local Agricultural Society should act as a sort of parent to a large number of smaller societies, the small societies to be responsible to you, and you and the others to be responsible to the Department?—That is our idea of the scheme. Our Society has also had the question of improving the dairy cows under consideration for the last couple of years, and we propose to support a number of Ayrshire breeders. We propose to go to Scotland and get a small number of in-calf heifers at first. I spoke to Mr. Tedcastle about the price, and I think we can manage to pay for them. We also trust, through Mr. Roney, an extensive local cattle dealer, to import heifer calves of the Holstein breed from Lord

Ridley, and a half of that breed. Mr. Roney thinks that he would be able to get a half of that breed.

11594. These are creatures of a great desire to improve the milk yield, and from that point of view it would be a great pity to throw cold water on it, but you will have a message here soon?—It will stimulate interest.

11595. Take the case of the creameries. They may be very good cow-testing associations?—In my opinion creameries are doomed unless they can give better prices for milk. Every creamery in Ireland will fail if they continue to pay the present prices.

11596. They are on the verge. Each of them would be a good nucleus for a cow-testing association?—Yes.

11597. Would you let each of them set up their own standard?—No, some of them might set up too low a standard.

11598. You would let the Department set up a standard for the whole country. Would you let them keep their own records?—Yes.

11599. You were talking of having a number of cow-testing associations affiliated with your Society. With whom would the creameries affiliate?—With the local Agricultural Society. We would be glad to help them if they wanted our help.

11600. How many creameries are there in your area?—We have one at Whitecross. We had another auxiliary creamery at Island, but it failed in a short time. It only lasted a very brief time, and I think it is pulled down.

11601. Would you take in Whitecross Creamery?—Yes, we would be glad. We have another creamery at Leightenland.

11602. You would like to take that in?—Yes; but they would rather go to Banbridge, because it is nearer to them.

11603. Do you know if Banbridge is going to form a cow-testing association?—I don't know.

11604. Do you know of any other district going to form these associations?—No.

11605. Are you in any way responsible for the work of the Veterinary Inspector—does he take his instructions from you?—Yes, we discuss matters.

11606. What instructions do you give him?—His books are kept in my office, and frequently he comes up and arranges the districts that he is going to, and I arrange that the Sanitary Officer is to go with him.

11607. Have you set up any standard?—The Veterinary Inspector brings his books to me to place before the Council, and I go over his books, and any particularity had cases, he tells me all about them.

11608. What are the particularly bad cases?—Dairy kept cowsheds, dirty and badly paved premises, milk kept in the dwellinghouse, and sometimes under the bed. I have seen that myself many a time.

11609. Is there a standard of excellence in your mind that you want to aim at?—Yes.

11610. Is your standard in any way different from the standard in the Armagh Urban or Rural districts?—I don't know what the standard is there.

11611. Do you know anything of what the other rural districts are doing as to the standard?—No.

11612. You set up your own standard?—Yes.

11613. You can be as strict or as lenient as you like?—We are fairly strict.

11614. You need not be strict if you like; it rests with yourself?—Yes.

11615. With you personally or with the veterinary surgeon?—The veterinary surgeon and myself have in our minds a standard, and we are trying to get the people up to it.

11616. But the standard is the standard of yourself and the veterinary surgeon?—Yes.

11617. And you are the veterinary surgeon's superior officer?—I don't think I am.

11618. He takes his instructions from you?—He does.

11619. It comes to this, that you are the absolute authority?—No, I don't agree with you. The veterinary surgeon discusses individual cases with me, states what he proposes to recommend, and asks if it is reasonable.

11620. You are the authority and the farmer must look to you. Is it you he must be afraid of?—There is no one a bit afraid of me.

11621. That is not a good thing?—I always try to avoid legal proceedings, and we hardly ever have a case, because we get the farmer in and try to persuade him to do what is required before I issue a summons.

11622. With regard to the animals that are sent to the knacker's yard, is there any authority to follow

up the destination of the diseased carcasses?—No; there is no supervision over them. A week ago last Saturday my Council issued a license. We have adopted by-laws under the Public Health Act which have been approved by the Local Government Board. Every man who slaughters a beast must apply for a license. We have here eleven medical officers of health, and I instructed them to inspect the slaughter-houses, and they have reported that, in their opinion, some of the slaughter-houses are reasonably sufficient for the purpose.

11606. What about the knacker's yard?—At the present time we have no means of supervising what becomes of the stuff, as long as the man keeps his slaughter-house reasonably clean.

11604. Can he sell to the local butcher?—I don't think so, because the Urban Council has also adopted stringent rules.

11605. He can shift them to some other place?—Yes. I have endeavoured to get my Council to try and know what becomes of the meat. The Council are not inclined to bother their heads with it.

11606. I hope you will persuade them?—I hope so.

11607. What about the inspector under the Food and Drugs Act?—No. The meat is not offered for sale here. It is shipped away. It is not sold in this district, and my Council don't bother their heads about it; they say that it would do for the Germans well enough.

11608. The CHAIRMAN.—Have you thought of any scheme whereby it would be possible to meet the scarcity of milk in rural districts?—I don't know; it is a very difficult question to deal with, but that there is a scarcity of milk for the labouring classes in the country I have no doubt.

11609. If your Rural Council was empowered to make a contract with a farmer, or several of them, and guarantee a fixed consumption for a quantity of milk to be delivered all over a certain area of country in which they were interested, and in which they were anxious to improve the supply of milk, the District Council to be empowered to fix the price of the milk, and possibly, if necessary, to reduce the contract price by some contribution from State aid or other source—what do you think of that scheme as a means of meeting the difficulty? A great difficulty in inducing milk vendors to devote themselves to this trade is a varying demand, because you know quite well that at the week-end money is very often scarce with poor people, and they cannot afford to buy milk. That is a difficulty on the question of distribution, and that, I am afraid, can only be met with by some effort to reduce the price?—You cannot reduce the price unless you get State aid. The main difficulty would be the distribution of the milk over a large area.

11610. I would make it a condition that the farmer contracting should distribute over a large area. The cost of distribution is undoubtedly a large item, and the varying demand is another of the very great

difficulties to be dealt with?—I have never thought of any such scheme as regards milk.

11611. Do you think that the scarcity to which you have referred is sufficiently widespread at the present time to demand that a remedy should be applied to it?—Yes, and I think that any move to supply the need is warranted.

11612. Sir STEWART WOODHOUSE.—Is there a proposal against selling milk by the small farmers?—Yes; if any small farmer sells a quart of milk he comes under the Order.

11613. The CHAIRMAN.—Has the imposition of the Order limited the sale of milk?—I don't think so very much.

11614. Is it not a powerful factor at all events?—No, 11615. Mr. CAMPBELL.—It has limited the sale to some extent?—To some extent.

11616. The CHAIRMAN.—You have not many creameries in the district?—Only one, in Whitecross, and there is one in Loughbrickland, on the borders of the county.

11617. Do you think the introduction of creameries has restricted the supply for domestic purposes?—I don't think so. Creameries do not affect the milk trade in the town. The Whitecross Creamery is eight or nine miles away. There is a line of railway in connection with Whitecross.

11618. No milk comes in by train to Newry?—As far as I know, I think it might be possible for the Urban Council to work some scheme in the town in regard to the milk supply, but I am afraid there would be a great many difficulties there.

11619. If you would be stopped by difficulties you would never carry out any reform?—That is so. On the whole, I think there is a fairly good supply of milk in the town of Newry. The poor people complain about the price of the milk, they say it is too dear, but the dairyman will tell you that milk cannot be produced at less than a shilling a gallon, and I agree with them. The poor people say that they cannot afford to pay threepence a quart for milk, but there is no article of diet so cheap.

11620. Mr. WILSON.—Do you think that the average grown man in Newry realises that he could live on milk?—He does not think anything of the kind. I hope the Department will do something about the bad bulls in the country and get them destroyed.

11621. Mr. CAMPBELL.—Are you in favour of having all bulls registered?—Yes. I believe no bull should be allowed for public use unless it attained a certain standard. I don't believe what is being said about the premium bulls, it is nonsense. I had a premium bull from a well-known Suffolk strain, and it was let out at a small fee of 1s., and not three people out of thirty paid the fee. Afterwards the price was 5s. in two cases, and I don't think I got the 5s.; and the bull was there all the season.

11622. Do you think that public opinion amongst farmers is ripe for a measure of that kind?—Yes, I am of opinion that the mangled bulls of the country should be destroyed.

MR. THOMAS CARSON CONTINUED.

11623. The CHAIRMAN.—You are resident in the neighbourhood of Rathfriland?—Yes.

11624. And are you interested in agriculture?—Yes, and dairy farming.

11625. Is there a shortage of milk in your district?—No. We send cows round our district, and are anxious to sell milk locally as far as possible.

11626. You actually send milk through portions of the country?—Yes.

11627. And sell in quantities, such as may be required by the householders?—Yes.

11628. Is that an increasing or diminishing trade?—I think it is diminishing.

11629. Can you give any reason for that?—It is generally stated that the payments are bad.

11630. There is a scarcity of money?—Yes, and people are buying milk in smaller quantities.

11631. There is a diminishing supply taken in by the householders in the district you serve?—Yes, amongst the poor people. I had a list prepared by our milkman a short time ago, and I was surprised to find that three-fourths were of small quantities—a pint would be the major quantity and less than that was usual.

11632. Even in the households in which there were a number of children?—Yes; they only use milk to colour the tea.

11633. And the children don't get milk otherwise?—No.

11634. Do you attribute that to scarcity of money or want of appreciation of the food value of milk?—To both. They live very much on tea.

11635. Do you sell all the milk you produce in your immediate neighbourhood?—We sell all we can and churn the balance.

11636. Do you send any to Belfast?—No.

11637. Or to Newry?—No.

11638. What distance from your dairy do you deliver?—About a mile and a half, and we drive round all the suburbs and supply the people there.

11639. Even the small creameries?—Yes. The reason we are anxious to sell as much as possible is we must either go out of the trade or make enough to keep the man and cart. It is necessary that we should sell as much as possible to pay current expenses. We churn what is over.

11640. What proportion of the milk you raise is sold pure?—About this time we would sell three-fourths sweet, but at other times only about half sweet.

11641. In the summer season?—Yes, when milk is plentiful, and they have goats and other supplies. We make butter of what is on bands and cart the better milk and sell it at a halfpenny a quart.

11642. Is there always a supply of butter available even now?—No, it is very little.

11643. You don't churn very much now?—No. We have a better milk trade in the winter than in the summer, because people have milk of their own in some cases during the summer months.

11644. Do you supply the entire town of Baskilham?—No.

11645. How many dairy cows do you keep?—We keep twenty-six in full milk, and then we have some pedigree cattle.

11646. Do you mix the milk of the pedigree cows with that of the dairy cattle?—Yes. I have got a pure-bred here. I got them for nursing our own calves. I have Aberdeen Angus and I have a few shorthorns.

11647. Do you keep any records of the pure-bred shorthorns?—No.

11648. Not of the commercial dairy cows?—Yes. We have records of a few cows providentially selected by the Department.

11649. But you have not kept them long enough to enable you to say what the milk yield would be for twelve months?—No; we can approximately do so from what they have produced up to the present.

11650. It has been represented to the Commission that there has been a depreciation in the milk yield of the present dairy cow. Is that a well-founded belief?—I believe it is. I don't think the cows now set as good as long ago.

11651. Although you buy cows with as much care and attention as you can possibly bestow on them?—Yes; the dairy qualities have diminished in cattle generally. I remember in the early days when we had the old Irish cow, and they were the best dairy cattle in our neighbourhood, and the cows that were bred up from these are better still.

11652. Do you remember the distinct type of Irish dairy cows?—Yes. They were peculiar colours generally—black and dun, some red, with white backs. They are now extinct. We scarcely ever get a white backed cow now. The best cow I remember when I was a boy was a dun-coloured cow.

11653. Was she hornless?—No, she had horns.

11654. Mr. CARSON.—The dun cow had not a white back?—No.

11655. The CHAIRMAN.—Was she of the Jersey type?—No; they seem to be a distinct cow. They were bigger than the Jersey and they were a good commercial animal.

11656. Did they breed good store stock?—Fully good store stock, but not so fine as at present. Cattle have improved in quality as stores.

11657. The type would be less suitable for beef production?—The maturity would not be so early.

11658. Were they healthy?—They were.

11659. I suppose there was no talk of tuberculosis in these days?—No, it was unheard of.

11660. Have you had much trouble from tuberculosis in your herd at any time?—No.

11661. You have not suffered any serious loss from it?—No. I have the pedigree cattle tested every year.

11662. And you never had any positives?—No; never in the Aberdeen Angus. I have a pure-bred shorthorn and one or two shorthorn cows.

11663. Do you think anything can be done to improve the milking quality of the shorthorn breed?—Yes. There is one point where I would wish to draw a line of demarcation and that is between the fleshy shorthorn and the lofty animals. The fleshy shorthorn have not diminished the milk yield in the country.

11664. You don't subscribe to that?—No. My experience is that flesh and milk are compatible, but that fat and milk are not, and that those should be a line drawn, and the cattle that are predisposed to a superabundance of fat should be discarded, because they are not suitable for milk. The fleshy bull of any type is a useful bull, and they will not reduce the milk to any extent. The outline of a fleshy animal is an even outline to the eye and the outline of a lofty animal projects.

11665. They are pasturableness?—Yes, and that class of animal is not a good animal for milk.

11666. Where do you buy your dairy cows?—In the county fairs and from the farmers in the neighbourhood.

11667. Do you ever try to procure animals with a milk

record from a good milking strain?—I have occasionally. I have a Jersey cow and some Ayrshire crossbred at the present time.

11668. Would you be good enough to tell us of this Ayrshire cross on a shorthorn?—I did not breed them myself.

11669. What is their conformation?—One I have at present has the colour of an Ayrshire, and is a little larger than an Ayrshire, but defective in proportion to the shorthorn type—narrow in the back and front. They never suited me, that class of animal. They don't carry flesh, and the best are not worth very much money.

11670. Would you tell us how this animal conducted herself as a milk producer?—Fairly well, but there is a great drawback in the offspring.

11671. Was there anything abnormal in the milk production?—No.

11672. It was not sufficient to counterbalance the deficiency in the value of her offspring?—Not in my case.

11673. Do you keep all the cows as long as they are profitable in milk—do you keep them for two or three calvings?—Only the best of them; we sell all the others. We keep the best of them.

11674. How do you ascertain what their milk-yielding powers are?—Observation.

11675. Until you come to the weighing machine?—Yes.

11676. What do you regard as a fair yield for the ordinary commercial cow in twelve months, say?—I have never made an accurate test of that kind.

11677. You have not calculated the yield per cow?—Not for that period.

11678. Take the ordinary period of twelve months, it would cover whatever condition the cow was in for that period. That is more reliable, because if you take them for a lactation period some may give a liberal supply for a short period and others would extend beyond twelve months, so that I think twelve months is the fairest test?—I think it is. We find that there is a great difference, and that the cow's yield is better if she is not allowed to go to the bull during the lactation period.

11679. I quite follow what you mean, but that would be rather an unusual policy to follow, simply to get up a record in that way by wasting the animal, so to speak, for a certain portion of her career. It would not be economically sound?—She would be a loss to breeding; but if she is not allowed to go to the bull she will milk more during the lactation period.

11680. I quite understand, but what I would contend, please would be the keeping of the record for an ordinary period, having the cow coming to milk in ten or twelve months. That is the way the cow would yield most in five years?—My experience goes against a current belief that if a cow is a good one once she is good always. I have found a cow milking well and afterwards giving less. If we get a cow from a poor district where she was not fed, and we feed her to the highest pitch, she will go to a high standard; but if we keep her on we will not get the same result; and I find it is better to change cows to get the best results and keep them for a few seasons, but not too long, because they won't hold out, and if they do they wear themselves out very soon.

11681. Of course the strain on their constitution must necessarily be increased?—Yes, they drop their milk less, and in that case they are not serviceable.

11682. It has many aspects, this question?—It is very complicated. I think a line should be drawn with regard to the improvement in stock and not give encouragement to cattle that predispose in that. My experience is that the Aberdeen Angus is the most profitable animal for general purposes.

11683. They would not be for dairy purposes?—Occasionally. I have known people that have cows from the first Aberdeen Angus twelve years ago, and they are the best cows they had.

11684. These would be cross-bred cows?—Yes.

11685. And what character would they possess?—were they more Shorthorn or Angus in character?—They were Angus in character and all were hornless.

11686. A fair proportion have proved to be good dairy cows?—Some of them have, and not many. If they keep cows they come out to be valuable, and are sold at big prices.

11687. Have you tested Aberdeen Angus cow's milk and compared it with the Shorthorn's?—No.

11688. Do they give as good milk?—I never made tests.

11688. What is your belief?—That they are moderately good milkers, and the milk is rich, and from the quality of milk they give I always think their calves do remarkably well; and that goes to show that there must be strength in the milk.

11689. When they are nursing their own calves?—Yes.

11690. Are you breeding these in order to produce bulls?—Yes.

11691. And you adopt this breed rather than shorthorns?—I do.

11692. Are they harder than a shorthorn?—Yes.

11693. Are they easier or more difficult to get?—Easier to get.

11694. A less nutritious diet will keep them in fair condition?—Yes, and they are more marketable. There is a great demand for them as stores.

11695. Do you think if the crossing with the Aberdeen Angus became general over the whole of County Down they would have an appreciable effect on the milk supply of the district—would it go to diminish it?—It might to a certain extent, but I think you would have other compensations.

11696. We are dealing with the milk side of the question at the moment?—Yes.

11697. Do you think that whatever loss might be in the milk would be compensated for in the additional value of the stores?—Yes; in the case of the farmer who does not get a higher price for the milk.

11698. You get no additional price for a high-class milk?—That is so. Even the creameries give but a moderate price.

11699. They are never extravagant in the price they pay for milk, so far as our information goes. Would the milk of an Aberdeen Angus cross cow sold on the butter fat probably realise as much money as the milk of the shorthorn cow?—Yes.

11700. And the latter might yield more?—I think she would.

11701. Are there any creameries in your district?—There is one about five miles away.

11702. Do you supply any milk to it?—No. There is one matter I wish to mention that has militated against the success of selling milk in small quantities to poor people. We are allowed only to use standard measures to retail milk by—the quart, the pint, and the half pint, and a half pint is the smallest that we use. The majority of poor people get a halfpenny worth or a pennyworth, and we have no measure for them, and the quantity has to be guessed. Since they won't allow a measure for these small quantities it is difficult to retail in the case of small supplies.

11703. And probably the milk sold in small quantities does not realise the full price?—No, it does not realise the price that it used to do. We used to have our own halfpenny and penny measures, but that has been changed, and consequently the smaller quantities have to be guessed, and it is not a profitable way of doing business.

11704. And I suppose it is in some degree restricted the sale?—We endeavour to supply.

11705. But other people might not?—Yes.

11706. If they were allowed to measure it would be much more convenient, and it would satisfy both parties?—The only way we could meet that would be to insist on not selling anything smaller than the standard measure; but that might prohibit some people buying, so we guess the quantity; but I object to that.

11707. It is not commercially sound?—No.

11708. Are your premises inspected by the veterinary inspector of the Newry Rural District?—Yes.

11709. Have you any reason to complain of the provisions of the Order?—I have great reason to complain.

11710. In what particular?—Because I think it is very partially carried out.

11711. That is a question of administration?—I think the Order is a good one, and I approve of it.

11712. That is what I would have expected from you; but you think that it is rather that it should be enforced in one district, not enforced at all in another, and only partially enforced in a third?—It is unfair to the purveyors of sweet milk. That is one of the causes that has led to the shortage of the supply. A great many producers of milk, rather than go to the trouble of going under the Order, go to the butter trade; and while the Order has done a great deal to raise the standard of creamery butter, nothing has been done to raise the standard of home-

made butter, which can be made under any conditions and kept in any condition. Undoubtedly, the health of the people is a supreme question, and all people should have the benefit of this Order, because I think it would benefit the farmer if his cattle were examined, as the unhealthy animals which were unsuitable would be weeded out. By keeping them there is a danger of propagating disease. I think the Order is most unfair in its application. A great many persons sell milk, I may say, undertaken to send coming under the Order. It is quite a usual thing for a farmer in the country to say, "we are giving milk to our labourers, but it is included in their wages," and he is selling it all the time. I would apply the Order generally to everybody who keeps cows.

11713. And you would prevent a man poisoning his own family if he left so unheeded?—Yes.

11714. You do not think that anyone engaged in a legitimate trade, and anxious to carry it out in a reasonable way, could object to the provisions of the Order?—No. It is for our own advantage to have the alterations that the Order requires made.

11715. Does it conduce to the production of milk in a more cleanly and hygienic condition than heretofore?—Yes.

11716. In regard to the labour in looking after the milking, have you any difficulty in that way?—No. People are not disposed to take the job on account of the Sunday work.

11717. Have you had difficulty in getting an efficient supply of labour for the milking of the cows?—We have more difficulty in the department of labour because of the Sunday work.

11718. The tendency at the present time is to have the Sunday free?—Yes.

11719. And of course the milk trade will not stand that?—No.

11720. Have you ever found that when the milking-time came, some of these engaged failed to turn up, being away at amusements?—I got a responsible man to look after that, and he can get additional help from his own family if there is a shortage.

11721. It might be that where such help is not available there would be considerable difficulty?—Yes, it is a difficulty.

11722. Have you considered any scheme yourself for the improvement of the milk-yielding properties of the cows at the present time independent of those in existence?—I will give you a brief outline regarding an improvement I would advocate, but whether it is a corresponding with a system that is in practice or not, I am not able to say. My opinion is that the registration of pedigree stock of all breeds should not be exclusively on a hereditary basis, because a good cow may have a bad calf, and that calf, in my opinion, should not be admitted to registration, that the bulls should not be registered on a hereditary basis until they have proved themselves, and that the heifers should not be registered on a hereditary basis until they have proved themselves good milkers. In order to establish a breed to excel in a certain particular, we must have behind it character in the same direction preponderating, because if we allow the bad animals to come they will militate against the development of the breed. We should breed from the best and exclude the worst. If I had means to follow cattle-breeding, I would breed on the two systems combined—that is the hereditary system and the utility system; I would have the best animals kept and reserved for breeding and the worst excluded, and not let the bad ones move you forward. That is the view I have in my mind. The same principle has often been applied by foreigners in regard to Irish horses, and the same thing holds good as regard to stock, but this statute lets the bad ones come in when they should be excluded. That is the principle that should be adopted, and a splendid stock could be secured with character behind it on both sides.

11723. It would be rather slow to get a scheme of that kind into operation, but it might pay eventually?—I think to take the best cows as they are being taken—the best cows in the country, cows that are indigenous to the soil, graded up by the improvement of pure bred stock, and bred them on that principle, you would soon have fine results, and that is the only principle I would be in favour of, because if we take them all in we would not make much progress.

11724. You do not see in your mind's eye anything in any way resembling the picture of the old Irish

cow?—I see something near it. My best cow is a black cow with horns, bred up from that cow—a very heavy milker.

11730. You do not know how she was bred—she is not a cross-bred Aberdeen-Angus?—No trace of it at all.

11731. Is she a fleshy beast?—She is a general purpose beast—a good commercial beast, with a splendid milk bag.

11732. Have you got her calves?—No.

11733. And is she a cow that you pulled up at a fair?—I bought her from a gentleman who owned her at his own place.

11734. He did not breed her?—She was bred in a neighbourhood district, I was told. She is a cross from a very old stock of black cattle that I remember in that district myself.

11735. Do you regard them as analogous to the Irish breed?—Yes; we call it the Irish breed. There might be a different breed in Ireland, but in my early days that was the breed.

11736. And they were black?—Yes, and red with white backs, and brindled. I have seen several of them brindled and they are splendid cows. They were the best cows to sell—all these cows with the characteristics of the old Irish cow. Generally small farmers and cowkeepers who stand in need of making money will sell the most valuable animals.

11737. They are tempted by the extra price to sell the good beasts?—Yes.

11738. And replace them with very inferior ones?—That is so, often.

11739. Is much loss entailed to the country by the export of the best type of cow?—There is a loss in money and a loss otherwise.

11740. Do you think it is deteriorating the milking properties of the cow?—Not if they get good calves instead. I know a gentleman who sells all his cows in their prime and keeps his young heifers, say, for two calves and sells them at four or five years old.

11741. Is a cow usually a worse milker on her first calving than after her second?—Yes, but she is improving.

11739. What price do you retail milk at?—About 3d a quart. It does not work out of that actually.

11740. Is that summer and winter?—Yes, at the present time.

11741. Is there a variation in the price?—We used to vary it.

11742. Do you feed your cows artificially at all seasons?—Yes.

11743. You give them meal, and cake, and roots?—Yes.

11744. Do you feed hay or straw?—Both.

11745. Chaff?—No.

11746. Do you allow your cows out in the winter season?—Yes, except the weather is very severe. I allow them out for a drink and a little exercise.

11747. You like to turn them out for a couple of hours?—We take them out to drink and give them a little exercise. We think it is good for them.

11748. Healthy?—Yes.

11749. Lady EVANES.—Do you consider the Aberdeen Angus crossed with the Shorthorn in good?—Yes.

11750. Do they mature early?—Yes. I have known them to mature as early as eighteen months.

11751. You have been able to sell them off at eighteen months?—Yes, to the butcher.

11752. And you think that they milk well?—They milk moderately.

11753. It is rich milk?—I expect it is.

11754. Have you ever tried the Shorthorn-Jersey cross?—No.

11755. I think you said that you considered all the by-products of milk ought to be under the Order?—Yes.

11756. Mr. CAMERON.—Did you ever hear of a breed called "Longhorn"?—I saw it at the Royal Show.

11757. What were they like?—Very fine animals.

11758. What kind of horns—high?—Yes.

11759. What colour?—Brindled and white backs.

11760. Do you think if they were used in Ireland it would improve the cattle?—Yes.

11761. You call them old Irish?—That was the name we had for them. Perhaps there is another name.

Mr. ARTHUR McEVOY, J.P., examined.

11762. The CHAIRMAN.—You are interested in agriculture in the Jerseypoint district, Mr. McEVOY?—Yes.

11763. Are you in the dairying industry as well?—Yes.

11764. Do you supply a creamery?—No.

11765. Or do you sell milk pure?—I churn.

11766. Are you not within easy reach of a large centre, or do you consider the other the more economical thing to do?—I think it is better for us. I never did anything else.

11767. What breed of cows do you keep?—Shorthorns cross and pure Shorthorns.

11768. You have a pure-bred herd as well?—Yes, a small herd.

11769. With regard to the ordinary commercial cow, is that cow to-day as good as any other cow that you have been familiar with?—I think I have very few milking shorthorns.

11770. But it has been represented to the Commission that the milk yielding properties have deteriorated. Is that your opinion?—It might in some breed of shorthorns, but there is a good breed of shorthorns which, if they are properly handled, will not deteriorate.

11771. Do you keep records?—No.

11772. The cows nurse their own calves as a rule?—No. We put feed the calves as a rule. We have a cow this year that is rearing her own calf. She is a pure bred cow.

11773. You do not take samples of the milk to ascertain its contents of butter fat?—Never.

11774. What is your butter market?—Newry.

11775. What price has butter been selling at in Newry?—We have got to the length of 1s. 4d. a lb.

11776. You sell it in small quantities?—Yes.

11777. Made up in pounds?—No, in bulk, twenty pounds.

11778. Does the butter compare favourably with the creamery butter?—I believe it does. We get a good market price, and the customers like it.

11779. You have no experience of creameries or supplying milk to them at all?—No.

11770. Do you think anything could be done by judicious selection to improve the milking properties of certain shorthorn breeds?—No. I find my cattle that I have been rearing for years as good to-day as the day I commenced. I change the bulls regularly.

11771. In the purchase of bulls, do you take any precautions to get a bull from a milking strain?—I buy a good thick, short-legged bull.

11772. Utterly regardless of the milking record of his dam?—Yes. I generally buy a thick, short-legged bull, and he has given very good results in our neighbourhood.

11773. Have you heard any complaints of the milk-producing properties of the cows of the district having been deteriorated by the introduction of the premium bulls?—I do hear it.

11774. Has it had an injurious influence on the milk-producing stock of the country?—I do not think so, if the cows are wisely selected. I think the bulls would not deteriorate the milking qualities of the cows very much as far as I know. Of course, there are always people who will be willing to blame any new scheme for all the ills that have occurred.

11775. And for many that have not occurred?—Yes, that is right. It is parties that know very little about these bulls that make the greatest complaints. I have known neighbours and farmers around me that would seriously send one cow to my bull in the year who would complain first that the bull was a bad one.

11776. You now bulls yourself?—Yes.

11777. Where do you sell?—Dublin, generally.

11778. Do you ever send in to the Newry Show?—No.

11779. It is not at the best season of the year?—It is too late in the year.

11780. Lady EVANES.—Do you separate your milk before churning?—We churn the whole.

11781. How many gallons of milk go to make a pound of butter?—I have no idea.

11782. Is there a Farmers' Association about Jerseypoint?—Yes.

Mr. ARTHUR McEVOT.—1st March, 1913.

11792. Do you belong to it?—I have never attended it. My son joined.

11793. What do they principally do?—They discuss farming matters and stock.

11794. Mr. CANNELL.—What do you do with your butter-milk?—Give it to the calves until they get strong, and I give some to pigs.

11795. Do you ever sell it?—No.

11796. There is no practice, is there, of bringing in the butter-milk in a cart and selling it in the streets?—Yes, by some people; but I do not do that.

11797. What would you get for it if you did that?

—Sixpence a dozen quarts perhaps now.

11798. So you think it is worth that to you at home?—Yes.

11799. You see making then about 8½d. a gallon with your milk, assuming that you are taking 3½ gallons to a pound of butter. You are making over 8d.?

—Yes.
11800. Is not 1s. 6d. a lb. a very high price for butter?—I get 1s. 4d. at certain periods, but my average price would be between 1s. and 1s. 2d. We hardly ever sell under 1s. a lb.

11801. The CHAIRMAN.—Your average price would be nearly 1s. 2d.?—Yes, between 1s. 1d. and 1s. 2d.

11802. Do you know the custom which prevails in many parts of the North, in which a labourer gets a certain amount of milk from the farmer as part of his wages?—Yes.

11803. Married men?—Yes.

11804. Do married men move from house to house and from farm to farm occasionally?—Yes.

11805. Do you hire them for six months or a year?—I hire servant boys.

11806. I was talking of married men?—I have a married man in the house myself.

Mr. PETER O'HARE examined.

11807. The CHAIRMAN.—You are resident at Mayo-bridge?—Yes.

11808. What direction is that?—It is in the Downpatrick direction.

11809. Are you engaged in agriculture?—In a small way only.

11810. And you are not dairying?—No. I keep a few cows.

11811. But you do not sell milk?—No.

11812. Is there a scarcity of milk in your district?—No, I cannot say there is. Of course, it has been scarcer this year than usual on account of the very dry season. Cattle generally went down and they have not pulled up yet.

11813. What I want to know is, if it is possible for the householders in the district to procure milk for their families if they have money to buy it?—It is.

11814. There is no scarcity from that point of view?—There has been a scarcity lately. There has been a great scarcity generally this winter.

11815. Where do the poor people buy?—From the farmers directly.

11816. And the farmers do not refuse to supply, even in small quantities?—No.

11817. Do they sell a pint?—Yes.

11818. How much would they charge for that?—A penny halfpenny or two pence.

11819. Have you formed any opinion as to whether the dairy cows of to-day are as good as those of a decade ago?—I do not think they are.

11820. You do not keep milk records?—No.

11821. Are they kept in your district?—No, not generally.

11822. Has any farmer commenced keeping them recently?—No.

11823. There are no cows registered under the Department's scheme in your own immediate neighbourhood?—No.

11824. Do you supply milk to your own labourers?—Yes.

11825. You give them a certain quantity of milk in addition to their ordinary wages?—I cannot say that. I do not know that they are charged for it at all.

11826. If you were making a bargain would you promise them milk?—No, there was never a word about it.

11827. But they get it?—Yes.

11828. And they all get a certain quantity each day?—Not every day, but from time to time during the week.

11829. Is it quite a common practice for a labourer to shift from one farm to another?—Yes.

11830. Was it more common than it is now?—Yes.

11831. The labourer hires himself to work for you for a year?—Yes.

11832. During that time you feel morally bound to give him milk for his family?—Yes, and butter-milk.

11833. If a labourer is in a Union cottage you would not feel the same responsibility?—No.

11834. Do you know anything of the Union cottages?—I know they are in course of erection in my district.

11835. They do not, of course, belong to the farmer?—No.

11836. And therefore he would have no control over the occupant?—No.

11837. Will he supply milk to the occupant if he works for him?—If it is in the agreement.

11838. If he is not going to work for you, you will not give him milk?—No.

11839. From that point of view, the possession of a Union cottage is a disadvantage?—I would not say so. The man he will work for will supply him with milk.

11840. Supposing he works with you one week and with another man another week, will you give him milk the week he is with you?—I do not know how that would work out.

11841. There would be a difficulty there?—Yes.

11842. You would prefer the old way of having a man in your own cottage?—I would, although I am pulling down my own cottage and letting a Union cottage be built on the site. I am not against the Union cottages.

11843. You will not be able to secure the services of that man?—I may or I may not.

11844. Is that custom universal in your neighbourhood?—I believe it is.

11845. And the employers of labour who keep cows give milk?—Yes.

11846. Are there any Union cottages in your district?—Not in my immediate neighbourhood.

11847. Is your a dairying district at all?—No, not a dairying district.

11848. Farmers do not supply a creamery?—No.

11849. Or send milk into Belfast or Newry?—No.

11850. They only keep enough cows for their own use?—Yes. They churn their milk and sell their butter.

11851. They are not subjected to any inspection under the Order?—No, there is no inspection.

11852. Do you think they should be inspected?—I do.

11853. You think it desirable that they should?—Yes. I think it would be desirable for their own health and for the general health of the public. I think all cattle should be examined from time to time to see that the dairymaid would have her hands clean when milking the cattle and that the udders of the cows would be clean. I think it would conduce more to good health than anything else that could be applied to milk.

11854. But have you thought of any scheme for improving the condition of the milk-producing dairy herds?—I think if there were some cattle bought from, say, Holland or Belgium—young stock—and crossed with our shorthorns and such breeds that it would increase the quantity of milk.

11855. You have no experience of the cows of Holland or Belgium yourself?—I saw a good many of them. I was there a few times, and I think that they are good animals and that the farmers will not keep cows that do not produce a certain quantity of milk.

11856. Is it a black and white cow you allude to?—Yes, and a pale red one, and I understand that they are very good dairy cows. The farmers would not keep them if they were not good. Another thing about our own production, I know the farmers as a general rule in our neighborhood sell the best of their young heifers. She would be worth from £18 to £25 and they usually keep an inferior cow. That is the general rule.

11857. Are they tempted by the extra price to sell?—Yes.

11858. It is not so absolute necessary?—The farmers are generally poor and not so well off as they were twenty or thirty years ago.

11859. Not so well off?—Undoubtedly not.

11860. They see in more precarious circumstances and compelled, owing to their financial position, to realise money by the sale of their best stock?—Yes.

11861. That must degenerate the using generation of stock?—Yes, it does very materially.

11862. Do you share in the general prejudice entertained against premium bulls?—I do not.

11863. You do not think it is a well-founded belief that they are mainly responsible for the deterioration in the milking properties of the cows?—I think the sale of the best stock, that is to say the young heifers, is a greater cause, and that the stock kept is not at all so good.

11864. No one would expect that a cow value for £10 would be as good as a young heifer valued at £20?—No.

11865. And they usually send to the fairs when they have an animal of that kind and sell to dealers who export them?—Yes.

11866. Is that a growing custom or has it been in existence long?—Yes, for twenty years.

11867. Do you remember a time when it did not exist?—Yes.

11868. When a man would be proud of a good beast?—Yes, and keep her, and could afford to do so better than now.

11869. Is it a shorthorn cross that you generally use with the premium bulls, or have you got Ayrshire?—Shorthorn generally, and half-breds as a rule.

11870. What is your opinion with regard to the half-bred bull? Do you think they are injurious?—Yes.

11871. Would you like to weed them out?—I would be glad if that were done, and I have been advocating that in my district.

11872. Your enlightened opinion does not prevail?—No. I think the farmers should be assisted to get better bulls.

11873. State assistance, you mean?—Yes.

11874. Would the extension of the number of premium bulls meet the case?—I know there is a great prejudice amongst many against premium bulls.

11875. We must live down prejudice in this country?—It is true.

11876. And you think that is one of the prejudices that should be throttled?—Yes.

11877. If there were enough premium bulls to meet the necessity of the breeders in the district, would the other bulls cease to be kept?—I believe so.

11878. That is a hint for Professor Campbell, and I am rather inclined to think that that feeling prevails in other districts as well as yours?—Yes.

11879. Mr. WILKINSON.—What would your opinion be regarding a cattle insurance scheme?—I have not given it any consideration.

11880. If a small farmer was sure that in the event of one of his cows dying he would get the full value, or approximately the full value of her from the insurance, he would not be tempted to sell, and would be more likely to breed from her?—Yes, I think that idea would be received favourably.

11881. What is your experience regarding tuberculosis in cattle in your district?—I never knew of any case in my neighbourhood, and I believe that to guard against that disease the address of the cows should be kept close, and also the dyer's hand.

11882. I was thinking of it from the point of view of the cattle. Have you lost cattle from that disease?—No, none in my district.

11883. And none have been taken away by the veterinary inspector and killed?—No.

11884. Mr. CAMPBELL.—Do you seriously suggest that anything should be done to prevent farmers from selling their best cows?—If there could be some means got of helping them not to sell them.

11885. Is it not a good thing to have in your herd a number of heifers coming forward, and when they come to their best sell them?—It is, undoubtedly.

11886. Suppose a man kept his best heifers and was always bringing them forward, you would not object to his selling his milk cow when she came to her best?—No.

11887. That is a legitimate trade in which a lot of farmers make a lot of money?—Undoubtedly.

Commander H. M. FISHER examined.

11888. The CHAIRMAN.—You are at present residing in the Waterpoint district?—Yes.

11889. Is there a deficiency in the milk supply in your district?—Well, in the summer time it is very scarce.

11890. Owing to the increased population?—Yes.

11891. I quite follow. Do you take any interest in milk production yourself?—I do.

11892. You have some land at your disposal?—I have fifty acres.

11893. What breed of cows do you keep?—Shorthorn and Jersey cross, and one Kerry cow.

11894. What is the result of the shorthorn and Jersey cross?—I have not had experience yet. I have not been at the breeding long enough, but I think it is a very good cross from the milking point of view.

11895. What is it in terms of what type of animal does it produce?—That is the worst part of it. You get a small type, and the butchers do not like the class.

11896. Is it very deep coloured?—Yes, like a Jersey.

11897. And the cross is not regarded as choice?—The butchers are not keen on it.

11898. You have no experience to enable you to say whether this cross is producing a good milking animal?—It is, as far as I can see.

11899. Is the milk rich?—Yes, up to about 4.1 per cent. or 4.3 per cent. of fat in the winter.

11900. So that it purchases largely of the property of the Jersey in the quality of its milk?—Yes.

11901. Has it the Jersey head?—Yes, and the black nose of the Jersey, too.

11902. The milk of that animal would be richer in butter fat than the milk of the ordinary shorthorn?—

Yes. It levels up the milk of the head if you have Jersey cows.

11903. Of course, it is richer in butter fat than the ordinary cross-bred animal?—Yes.

11904. Is it a premium bull you have got?—No, my own bull.

11905. Is there any difficulty experienced by the poorer classes in your district in procuring milk if they have money to buy it?—I do not think so. Milk is scarce, but I think people can always manage to get a little milk from the farmers around.

11906. Is the land able to produce milk up to the ordinary legal standard?—Yes, with the aid of artificial feeding.

11907. Do you give artificial feeding all the year round?—Yes.

11908. Do you keep the cattle in in the winter time?—No. On a fine day I would let them out for a little time. I give my cattle hay, yellow meal, grain, crushed oats or soya cake, turnips, straw, and hay.

11909. Do you find any difficulty in having the milk tested from the turnip feeding?—No.

11910. You do not feed until after milking time?—No.

11911. Do the farmers in the district go in for tillage to any considerable extent?—A good many of them do. Lots of small people keep cows. In the winter milk is very scarce.

11912. Do you sell milk?—I do.

11913. Is it delivered round the town?—Yes, twice a day.

11914. What is the price?—A shilling a gallon all the year round.

11915. If you could produce more milk do you think you could sell it?—I think so.

11916. Is an effort made by the farmers in the surrounding districts to provide for the increased demand of the summer visitors?—Yes.

11917. I suppose you can hardly know whether in the hill districts the poor people can procure milk there?—I should think they can. Lots of the small people keep their own cows.

11918. You have not a large labouring population in your district?—There is not a large labouring population. Of course, there are milks.

11919. Do the milk employees get a reasonable supply of milk?—The milks are in Rostrevor, and I do not know very much about it.

11920. Are your premises inspected by the veterinary inspector of the rural district?—They are inspected by the doctor of the district and by the Town Inspector of the Urban District.

11921. You are familiar with the provisions of the Dairies and Cowsheds Order?—Yes.

11922. You do not think there is anything wrong in the conditions laid down?—No.

11923. And that any person anxious to carry on a legitimate trade has no reasonable ground of complaint?—No.

11924. Lady EVERARD.—Is it your opinion that all the by-products of milk should come under the same regulations as new milk?—I think so, certainly.

11925. Do you know anything about the district between Hilltown and Rostrevor?—It is poor.

11926. Can the people in that district get milk?—They all keep their own cows.

11927. Then there is no scarcity?—No, not from the dairymen's point of view.

11928. Mr. WILSON.—I see you have a note in your price of evidence regarding the keeping of milk records?—Yes.

11929. Have you kept them?—Yes.

11930. Will you give us some particulars regarding the records?—I weigh the milk morning and evening. I take a note of what every cow is doing week by week during the whole lactation period. The best cow I had gave 1,300 gallons during the lactation period. That cow is not now on the register, but when the Department have re-inspected their decision I hope she will be. Then I have three cows under the Department's scheme. One gave 700 gallons in a lactation period of ten months and another 1,300 gallons.

11931. Have you kept a record of all the cows in your herd?—Yes.

11932. Have you begun to weed out the bad ones?—Yes.

11933. What is your experience about weeding out the bad ones—are you often surprised to find that good looking cows give indifferent results?—Yes.

11934. Do you also keep a diary as well as a weekly record?—Yes.

11935. Would your experience be that the dairy record is a good index to the cow's condition?—Certainly.

11936. The dairy record as the barometer of the cow?—Yes, and the same it is improved by the Department that the records should be kept the better. It is not an expensive item. Seven shillings and sixpence is the price of the weighing machine, and Mr. Bell (Secretary of the Newry Agricultural Show) has offered to provide the printed notes containing a succinct summary regarding the records.

11937. Have you been troubled with tuberculosis?—No. I had my cows tested—eighteen of them.

11938. Did they all pass?—Yes.

11939. What about the cows coming into your herd?—I do not have them tested immediately they come in. I have them tested in batches of five or six.

11940. You have not had to dispose of any at all owing to disease?—No.

11941. You said that you are inspected by the Town Inspector?—He inspects to see that the by-products are clean.

11942. In his capacity as sanitary officer?—Yes. The doctor inspects also.

MR. JAMES CONNOLLY CHAIRMAN.

11943. The CHAIRMAN.—You are dairy inspector to the Newry Urban District?—Yes.

11944. You carry out the duties in conjunction with the veterinary inspector?—Yes.

11945. Is your work mostly confined to watching whether or not those engaged in the handling of the milk are careful in keeping their hands clean and their clothes in good condition?—Yes.

11946. Have you had much trouble in enforcing that portion of the Order?—Yes, I had some trouble.

11947. Is an improvement taking place as time goes on?—Yes.

11948. And have you less trouble now?—Yes.

11949. Have you been obliged to institute prosecutions?—No.

11950. Repeated admonitions have been sufficient?—That is so.

11951. Do you know much about the conditions under which the poorer portions of the population live—are they getting a proper and adequate supply of milk in this rural district?—I do not think so.

11952. For what reason have you come to that conclusion. Do you think it is because they have no money to buy it?—They may not have money at all times, and they seldom get it on credit.

11953. With regard to the milk shops, do you make an inspection of those?—Yes, regularly.

11954. Have you had any difficulty with them in inducing them to keep milk stored under proper conditions?—Yes. In fact I found the milk often uncovered.

11955. Exposed to contamination in a variety of ways?—Yes.

11956. Have you been enabled to enforce the provisions of the Order without prosecutions?—Yes. The people were very willing to do what I asked.

11957. Was the milk sometimes kept in contact with articles that might be likely to taint it?—Yes. In many cases paraffin oil.

11958. Onions and oranges?—Yes.

11959. Had you ever any difficulty in gaining access to premises other than the shop where milk was stored?—No.

11960. Do you send any samples for analysis?—Yes.

11961. Has the result been satisfactory?—If the milk is good I get no reports.

11962. That is hardly satisfactory. To whom do you send the samples for analysis?—To Sir Charles Cameron.

11963. You never had any report in which the milk was stated to be below the legal standard?—No. The lowest was 2 per cent.

11964. A little three per cent?—Yes.

11965. And there was no suggestion of a prosecution, of course, when it reached that standard?—No.

11966. Is the milk supplied to the poorer districts as good as that supplied to the better class people?—I believe it is.

11967. Quite the same?—I believe it is.

11968. It was suggested to me in another notice that the milk apparently was good, and that to the better class people good milk was sold and in the poorer districts poor milk was supplied. You have no reason to believe that that practice is followed here?—No, and from information from the police, who take samples, there never have been any reports for eight or nine years.

11969. There is no reason to believe that the milk is tampered with in any way?—No.

11970. Do you know whether or not the system of providing meals for the factory operatives is carried out by the milk proprietors?—I am not aware.

11971. You do not know anything about the practice?—No.

11972. We were told by one witness that an attempt was made to provide a meal for the factory operatives, and cooking utensils were provided, and that it was abandoned because the people preferred to go to their own homes?—I know they have cooking utensils in the factory.

11973. Do they refuse them?—A number of them do.

11974. And do not leave the premises from morning until night?—I do not think so.

11975. Mr. CAMPBELL.—How do you take samples of milk?—I ask for a pennyworth of milk and I inform the person that I am going to have it analysed by the public analyst.

11976. You allow them to take the sample?—Yes.

11977.8. You cannot take a sample without paying for it?—Certainly not.

11979. From whom do you get your instructions with regard to your duties?—From the Urban Council.

11980. From whom?—From the Town Clerk, or direct from the Council.

Miss E. VAN STRAIGHT examined.

11991. The CHAIRMAN.—You are lady superintendent in the County Infirmary and Newry Hospital?—Yes.

11992. Is there a grant given towards the institution by the Down County Council?—Yes.

11993. And it receives all classes of patients?—Non-Indochina.

11994. Medical and surgical?—Yes, and children and adults.

11995. Are many children taken as patients?—Yes. We have generally on an average one or two children in the wards.

11996. What condition do you find these children in with regard to their general health?—As a rule, the children from the town of Newry are poorly nourished.

11997. And do not exhibit such a condition as would indicate that they were properly fed in their early infancy?—No.

11998. Are they familiar with the value of milk as a diet?—That is our greatest difficulty.—to get them to take milk. They prefer tea, even children a year old.

11999. Would not that be evidence that they had not been accustomed to have milk as a food?—Certainly. I think the children in Newry, as a rule, do not get milk. They get milk tea.

12000. That is a very poor substitute?—Yes. We find it takes some weeks to get some children accustomed to the use of milk. It is the same with the adults. We find great difficulty in getting the milk girls to take milk, in fact I have known patients who were put on milk diet say that they would go out altogether if they did not get something else.

12001. Something they were more accustomed to?—Yes.

12002. That would be conclusive evidence that the working class population are almost strangers to the use of milk as a food?—I think the children only get the milk in their tea or perhaps a little milk on porridge. We find the children, as a rule, prefer butter-milk.

12003. I take it that you have no difficulty in expressing an opinion that children brought up in that way are not likely to develop sound and healthy constitutions?—The greater number of the children who come to us are suffering from some form of tubercular disease.

12004. Would you think that the manner in which they have been fed would be in some degree responsible for the presence of tubercular germs in the system?—I certainly think so. I think that when the mothers go to the milks the children are neglected.

12005. Have you thought of any scheme whereby the evil consequent on this system might be reduced

11991. Among other things, do you inspect the cattle?—Yes.

11992. Were you brought up amongst cattle?—Yes. I was reared in the country.

11993. Did you ever work amongst cattle?—No.

11994. Did you ever milk a cow?—I have milked a cow.

11995. Do you know the difficulties of milking a cow?—There is a little difficulty.

11996. Can you milk a cow with dry hands?—I know there are dry milkers and wet milkers.

11997. Really dry?—Yes.

11998. Did you ever look to see if their hands were dry?—I think they were dry.

11999. You had better shake hands with the milker the next time you are in a byre and see whether his hands are dry or not.

Mr. WARD.—Do you go outside the Urban boundary to see what happens in the Rural District?—No. I have no authority.

11990. I know that but do you do it in point of fact?—No.

—some other means of having the children cared for?—The best thing would be if the mothers did not go into the factory, but that seems impossible here. They leave their children in charge of other women.

12006. All your patients in the hospital are drawn from Newry and the district around?—Yes. We go as far as Hilltown and Desmonee and other districts.

12007. Have you many acute tuberculous cases coming in?—In the form of joint disease we have.

12008. Miss McNEILL.—Is tubercular peritonitis common?—Yes. I do not think the people get milk in sufficient quantities at all.

12009. The CHAIRMAN.—Do you think the mothers or those responsible for the bringing up of the children realise the value of milk as a food?—They do not. If some scheme could be devised for the education of the mothers it would be important. The mothers are quite ignorant of the importance of a milk diet for their children.

12010. It is not always extreme poverty that prevents them buying milk?—No, because they buy other foods that are more expensive.

12011. Miss McNEILL.—Do they buy a large amount of these potent prepared foods?—No.

12012. What do they give the babies?—They give them anything that is going. That is what they tell us in the hospital.

12013. The CHAIRMAN.—There is no scheme by which you take care of the patients after the convalescent stage?—Yes. We keep them in the hospital as far as our accommodation goes.

12014. Do you have sometimes to discharge patients sooner than you otherwise would for want of accommodation?—Not often.

12015. Do you get a subvention for your institution from the Newry Urban Council?—No.

12016. You get our bulk contribution from the Down County Council?—Yes.

12017. Lady EVERARD.—You tell us that the girls going into your hospital would not touch milk?—There is a general dislike amongst the working classes to milk food—rice puddings. We find after a time they like it.

12018. They come into the hospital as if they never knew what milk was?—Yes.

12019. That seems such a very serious thing—the mothers have never been really trained?—No. They do not understand the value of milk for their children.

12020. And you would suggest that a subvention for educating the mothers would be advantageous?—The mothers and girls.

Miss E. Von Sonnen.—1st March, 1912.

12001. Have you a Technical School in Newry?—Yes.

12002. Are there lectures given in Hygiene there?—I cannot tell you.

Mr. Edward Holder (Principal of the Newry Technical Schools).—Not under the direct head of Hygiene, but we have Domestic Economy classes.

12003. Lady Evelyn (to Mr. Holder).—Are they well attended?—Yes. We have on the roll over one hundred and fifty young women for the last nine years. I may state further that we actually go to the mill premises, and a special course of instruction is given there. The instruction is free, and the girls are allowed to eat what they cook. As a matter of fact, they get their tea before going home, and we see that they get something wholesome.

12004. Mr. Wintress (to Miss Von Sonnen).—Have you a branch of the W.N.H.A. in Newry?—No.

12005. Have you got anything like the system in Belfast, where health visitors go about to see that the mothers are properly instructed?—I do not know of that.

12006. Miss McNamara.—Is the Notification of Births Act adopted in Newry?—I do not know.

12007. Mr. Wintress.—You appear to have a great deal of tuberculosis amongst the children of the working classes?—Yes.

12008. And in the same breath you say they get no milk?—Yes.

12009. It appears to me that you have almost pulled down the connection between tuberculosis and the milk supply?—I cannot help that.

The Commission adjourned at 5.20 p.m. till the 29th March, 1912.

APPENDIX A.

(Referred to in Question 979, page 85.)

IRISH AGRICULTURAL ORGANISATION SOCIETY, THE PLUNKETT HOUSE, DUBLIN.

Circular C. 22.
(Creameries.)

February, 1911.

DAIRIES, CREAMERIES AND MILKMAKERS' ORDERS

DEAR SIR,

The I.A.O.S. intends to approach the Local Government Board with the object of obtaining some relaxation of certain provisions of this Order which, when strictly enforced, are reported to be seriously injuring the Creamery industry, and, failing such relaxation, to endeavour to secure the extension of the operation of the Order to all dairy farmers.

I am to request that you will fill up and return to me, at your earliest convenience, the accompanying form of queries, so that the I.A.O.S. may be in a position to support its case by evidence of the effect which the Order has had on the milk supplies of the Co-operative Creameries.

Yours faithfully,

H. A. ANDERSON,

Secretary.

The Manager of the Co-operative Creamery
named in the address.

DAIRIES, CREAMERIES AND MILKMAKERS' ORDERS

1. Name of Society.....
2. Has the Order been adopted by the Local Authority in your District?.....
3. Is it strictly enforced?.....
4. Please give the following particulars:—

	1908	1909	1910
Total No. of Milk Suppliers			
Total Milk supply (gallons)			
5. Do you attribute the falling off (if any) in your milk supply to the operation of the Order?.....
6. If any suppliers left owing to the Order, did they do so during the Winter or the Summer season?.....
7. In what respect do you think the Order might be amended with advantage to the creamery industry?.....
8. Are you satisfied that the Order should remain in force as it stands provided it were extended to home butter-makers as well as to your suppliers?.....
9. Has the Order effected any improvement in the purity of your milk supply?.....
10. Please state here any other facts bearing on the question:—

Signed.....

1911.

22

APPENDIX B.

(See Questions, 1995, p. 47, and 1906, p. 316).

Return of Milk Traffic to Dublin.

GREAT SOUTHERN AND WESTERN RAILWAY.

RETURN of the Number of Gallons of Milk received at Kingsbridge for the undermentioned years.

Year.	Total Number of Gallons of Milk for Year.	Year.	Total Number of Gallons of Milk for Year.
1895	750,945	1904	557,788
1896	750,187	1905	566,721
1897	861,048	1906	535,451
1898	833,488	1907	512,704
1899	894,435	1908	472,789
1900	884,023	1909	583,101
1901	593,606	1910	619,330
1902	722,620	1911	768,849
1903	582,536		

MIDLAND GREAT WESTERN RAILWAY.

RETURN of Milk Traffic on the Midland Great Western Railway system, received at Broadstone, Dublin, 1907—1911.

Stations.	1907.	1908.	1909.	1910.	1911.	Total.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.
Laura	—	—	—	—	42	42
Leixlip	4,483	4,647	5,114	5,020	4,917	24,281
Maynooth	10,478	13,752	10,799	7,680	8,437	51,902
Kilcock	3,774	2,982	—	—	—	6,756
Hill of Down	30	12	—	—	—	42
Kilfarnham	3,693	4,881	2,730	1,773	—	12,747
Ballinagar	3,825	8,248	7,905	6,333	4,387	32,598
Castletown	—	—	34	—	—	34
Harlespeth	—	27	—	—	—	27
Kilnade	1,440	1,360	1,645	1,834	1,732	8,999
Malinbeg	—	10	—	—	—	10
Streets	4,596	3,019	2,125	2,340	2,366	14,450
Ballinacorney	48,545	30,841	8,309	788	—	168,423
Boyle	—	—	16,593	660	129	17,382
Colony	—	—	—	1,520	—	1,520
Killeshandra	—	—	—	33	—	33
Castles	24,149	27,641	28,392	24,734	24,799	149,297
Dunboyne	14,201	11,643	63,198	12,625	12,075	93,142
Burtonstown	16,569	7,621	3,671	4,437	3,711	30,099
Droichead	287	—	—	—	—	287
Kingscourt	4,320	3,434	3,476	2,917	2,557	16,794
Ballinacorney	—	—	—	—	461	461
Ballinag	3,730	4,116	3,616	2,590	4,544	18,611
Totals	160,492	142,813	101,384	83,585	78,629	566,913

GREAT NORTHERN RAILWAY COMPANY (IRELAND).

STATEMENT showing the Number of Cans* of Milk received at the principal Receiving Stations for conveyance to Dublin. Years 1904 to 1911 inclusive. Also Statements giving the Total Number of Cans of Milk received at Dublin. Years 1895 to 1911 inclusive.

Stations.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	Year.	No. of Cans received at Dublin.
	No.	No.	No.	No.	No.	No.	No.	No.		No.
Malinbeg	—	—	—	—	—	11	583	1,185	1895	16,225
Donaghadee	2,493	2,462	2,506	2,621	2,714	2,951	3,338	3,287	1896	12,245
Garraunstown	362	363	358	433	1,073	1,323	859	540	1897	22,380
Drumgatha	9,163	10,206	9,854	10,126	10,679	11,498	12,101	10,105	1898	12,259
Droichead	2,164	2,028	2,002	2,394	1,739	1,339	1,742	649	1899	13,315
Ballinag	—	—	—	183	757	615	609	526	1900	11,476
Virginia Road	—	—	—	—	—	—	184	588	1901	11,580
Droichead Junction	—	—	—	—	—	—	237	663	1902	11,671
Arden	—	642	683	621	82	—	—	—	1903	12,380
Castledillonham	1,494	2,363	2,445	3,691	4,311	4,425	4,616	4,638	1904	17,424
									1905	18,197
									1906	20,426
									1907	20,465
									1908	21,642
									1909	22,917
									1910	23,926
									1911	22,599

*The Company have no means of ascertaining the number of gallons forwarded or received.

Return of Milk Traffic to Dublin.

DUBLIN AND SOUTH-EASTERN RAILWAY.

RETURN of Milk Traffic to Dublin on the Dublin and South-Eastern Railway System. Years 1902 to 1911 inclusive.

TO HARCOURT STREET.

Station from	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
	No. of Gals.	No. of Gals.	No. of Gals.	No. of Gals.	No. of Gals.	No. of Gals.	No. of Gals.	No. of Gals.	No. of Gals.	No. of Gals.
Kilcool	7,907	7,934	6,437	8,100	6,700	7,684	7,934	13,110	5,972	7,29
Newcastle	8,103	17,097	10,876	17,749	11,800	5,304	5,002	4,135	9,645	14,888
Wicklow	10,954	13,634	24,407	31,557	18,961	10,453	11,245	10,909	10,178	11,781
Bathmore	14,111	13,242	27,068	26,114	25,410	23,529	23,439	20,383	25,033	22,871
Glasnealy	15,271	17,368	24,590	26,324	31,424	28,842	27,386	31,655	23,305	18,332
Rathfriland	16,633	15,332	18,812	18,230	17,346	19,561	16,301	11,634	14,010	10,448
Ovens	5,538	1,332	1,902	3,449	4,452	6,538	12,254	22,537	24,338	19,559
Woodmbridge	63,973	53,483	53,034	60,507	64,481	64,740	53,074	58,300	54,772	61,666
Aughrim	12,575	17,100	13,935	9,680	10,279	8,370	10,004	8,018	11,035	10,383
Ashtown	12,048	14,548	9,217	15,384	22,067	21,622	28,766	36,457	47,949	47,327
Isack	49,514	50,081	61,134	73,949	88,769	80,305	92,640	89,367	86,158	84,680
Curry	63,706	63,502	68,333	60,772	63,369	60,789	68,034	61,480	67,318	73,482
Ferna	13,000	10,147	9,883	10,700	11,133	9,501	8,814	7,738	7,896	6,329
Enniscorthy	37,257	26,332	20,947	25,880	26,923	23,786	18,161	5,579	20,540	17,056
Wexford	13	Nil	Nil	1,245	184	320	Nil	1,314	1,488	988
Total	301,723	278,410	275,944	322,026	405,705	383,989	374,710	379,304	409,126	403,642

TO WESTLAND ROW.

Station from	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Kilcool	Nil	Nil	Nil	Nil	Nil	Nil	Nil	1,774	Nil	Nil
Newcastle	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Wicklow	Nil	Nil	Nil	704	1,399	Nil	Nil	Nil	Nil	Nil
Bathmore	90	Nil	Nil	Nil	Nil	Nil	1,117	1,190	Nil	Nil
Glasnealy	6,153	5,068	1,894	Nil	Nil	Nil	583	Nil	3,046	3,432
Woodmbridge	Nil	Nil	2,495	4,239	676	Nil	1,013	Nil	Nil	Nil
Aughrim	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	3,214	3,530
Ashtown	Nil	Nil	Nil	Nil	Nil	Nil	Nil	1,000	3,510	3,489
Isack	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	602	770
Curry	Nil	Nil	Nil	Nil	3,384	5,045	213	10,220	17,043	10,054
Ferna	Nil	Nil	601	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Total	6,173	5,063	5,090	4,909	4,489	5,103	4,002	18,813	27,327	24,890

TO ARIENS STREET, C.D. & R.

Station from	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Kilcool	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Newcastle	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Wicklow	3,345	3,823	5,379	Nil	1,144	4,947	6,122	3,444	5,701	5,321
Bathmore	6,682	4,537	6,519	5,849	7,529	7,323	5,040	5,016	10,005	4,983
Glasnealy	10,574	11,294	8,759	9,723	7,223	10,847	10,580	8,968	8,249	1,582
Ovens	4,626	7,228	4,178	4,340	5,618	11,348	4,574	201	Nil	4,288
Woodmbridge	9,736	10,070	11,399	11,625	6,127	17,569	21,082	14,002	7,730	3,567
Aughrim	Nil	Nil	3,046	612	495	1,471	702	Nil	Nil	184
Ashtown	Nil	Nil	10,643	21,010	23,234	24,734	13,084	201	2,705	3,323
Isack	Nil	Nil	Nil	Nil	24	Nil	66	Nil	146	Nil
Curry	Nil	Nil	Nil	180	368	150	664	1,208	Nil	Nil
Total	23,339	43,043	50,606	43,925	50,654	78,251	66,387	39,428	38,364	24,308

APPENDIX C.

DAILY MILK SUPPLIED TO CHAMBERS.

(See Question 2,400, page 78.)

Letter to Department from the owner of a Creamery and a prominent member of the Dairier Trade.

"DEAR SIR,

"One of your Inspectors, 'Mr. A.' has sent me his report on the working of our creamery at 'X.' I am very thankful for his present and past reports, and find that they are dictated by a good deal of intelligence and close observation, for which I am very grateful, and will do my best to carry out.

"I beg, however, respectfully to call attention to one part of his report, in which I have no doubt he is perfectly correct, but which I would like to ask the aid of the Department to carry out, viz.—"Condition

of milk supply: a number of the suppliers had their milk delivered before I arrived. All the milk I saw supplied was ancient, but look-outs were clean." As to the condition of the milk supplied, if we refused to receive some it creates a most unpleasant position for us. The man whose milk we refuse looks upon it as a personal insult, and wants to know why he is singled out and held up to obloquy amongst and before all his neighbours, as he is convinced that his milk is as good as all clean as any of theirs. Therefore, except we refuse all the milk, and thereby be compelled

to shut up our creamery, we seem to be in practice almost helpless, although we know of many theoretical remedies to be suggested. We should be very glad to know if some competent Inspector, backed by authority, could be sent to inspect our neighbourhood and visit the houses and shippens * of the farmers, because we respectfully beg to submit that the very A.B.C. of improvement in national dairying for Ireland must be the encouragement and maintenance of a clean and pure milk supply. Without this as an initial and reliable state all the rest of our efforts are comparative failures. The average country proprietor or manager is not in a position strong enough to take the drastic limits that an adviser may superficially recommend in these cases. He knows that in nine cases out of ten the weak competing creamery in his neighbourhood would gladly welcome the newcomer who deserts the other creamery, and farmers knowing this simply swap their fancies at us, and influence his sisters, his cousins and his sons to leave us and go to the competing creamery. In a very short time our efforts at reform would result in our own extinction, hence we have not the moral courage to do what we know ought to be done. We are not acquainted with what powers may be vested in the Board of Agriculture under the various Acts applying to milk and dairying, sheds, etc., etc., but would feel very thankful indeed if the Department could help us in this matter. Whether it is possible that the head constable of the town would be empowered with an Inspector to visit all farm-houses, and also to take samples and test the milk being supplied, we do not know; I only refer to this as a stray hope that some scheme could be devised by which the raw material of the butter production of the country could be raised to a standard guaranteeing healthy conditions, as well as superiority in quality, to enable us to raise the standard of the home supply in competition with our foreign imports.

"Yours faithfully,

"X. Y. Z."

* Byres.

Note in Reply of an Inspector.

"The condition of the milk supply is bad at this creamery, but as far as they refuse a supplier's milk 'X's' carts go right into the supplier's door for that milk, no matter how bad it is."

Letter from the manager of a Creamery visited by the Inspector in Dairying for the district.

"Dear Sir,

"I enclose you resolution adopted by my committee at their last meeting re your Inspector. The cause of this is, your Inspector is not visiting the neighbouring creameries. When he was here in June he had occasion to find fault with some suppliers in the manner in which they supplied their milk. He spoke severe to one (quietly) about the cloths. The said supplier left this creamery next day and went to a neighbouring creamery, who received him with open arms. My committee and myself are more than ready your Inspector would come around, but considering the present state of things, all our suppliers would leave and go to where your Inspector would have no access. Hence we are expecting you will unfortunately adopt compulsory methods by which one creamery cannot have a monopoly of the other. My committee and I would very much desire that your men would call occasionally and examine the house, its working,

pipes, etc. I am sure and confident you will very soon see your way for compulsory examination. Then all creameries would be placed in an equal footing.

"Yours faithfully,

"P. Q. R."

Copy of Resolution

"At a meeting of the committee of the above Society it was unanimously resolved that the Department's Inspector be written to, intimating him not to come to our creamery in future until he will have compulsory power, and then all creameries will be treated alike."

Letter from the Manager of a Creamery in reply to letter from Department, stating that the visits of the Inspector must cease unless some attempt is made to improve the conditions of the milk supply.

"Dear Sir,

"My Chairman has handed me your letter of the 15th instant re your Inspector to the above Society. He has told me to tell you that it is not the wish of the committee that the creamery be removed from the list of those visited by your Inspector, so far as the house and surroundings are concerned, but until all the neighbouring creameries are brought into the same rule my committee cannot allow your inspectors on the platform. As I told you before, the least word said to supplier he is off next morning. I and my committee would be very glad to have your Inspector from time to time, as I am sure he would be a service to my creamery. I hope before long that the Department will have compulsory powers to visit and inspect every creamery.

"On behalf of the _____

Memo. from Inspector re Dairying with reference to proposal to remove Q's creamery from the list of creameries to be visited on account of dirty milk being accepted.

"About two years ago the managers of this district agreed not to accept milk rejected for uncleanness at another creamery. The manager of 'X's' creamery rejected a supplier's milk for uncleanness, and at the same time wrote to Messrs Y's manager, pointing out that he (manager of 'X's') had rejected a supplier's milk, and that under the agreement the managers had come to, he (Messrs. Y's manager) could not take it. Not only did Messrs. Y's manager accept the rejected milk, but he actually gave the letter from manager of 'X's' creamery to the supplier. The supplier happened to be a brother of 'Z's' B.C., and it was only with difficulty that a libel action was prevented. 'Y's' manager is the very man 'Q.' has to contend against, and if he rejects milk it would be accepted by 'Y.' Removing creameries from the list of visits is no remedy, it only makes bad worse. Instead of threatening to remove the creamery from list, it would be well to write 'Q.' pointing out the necessity for a clean milk supply, and that he should make every endeavour to get his milk supply delivered as clean and sweet as possible. Apart from the condition of the milk supply, the condition of the creamery is improving. Messrs. 'Y.' and 'P.' are the owners of the other creameries in 'A.'"

APPENDIX D.

(See Questions 2482 and 2512, page 62.)

Statement furnished by Mr. Poole Wilson re Milk production of Ireland, and quantity absorbed by the Government.

The only statistics available which throw light on this are those based on the figures as to butter production, contained in Part VI.—Preliminary Tables of the Census of Production, 1907 (Cd. 2468), 1911.

The returns are received from creameries and factories engaged in the manufacture or blending of butter. Butter, cheese, etc., made by farmers are not included.

According to the figures on page 84, 670,000 cwt. of butter were made in creameries and factories.

Of this quantity creamery butter accounts for 400,000 cwt., and factory butter, 170,000 cwt. This figure is based on the returns made in connection with a voluntary question addressed to the makers, and corrected by firms accounting for 90 per cent. of the whole.

The 500,000 cwt. of butter would require about 140,000,000 gallons of milk, and the 170,000 cwt. of blended butter 57,120,000 gallons of milk.

	1907.	gallons
Milk cows	—	1,561,463
Less heifers in milk	—	86,000
		1,475,463
Less 5 per cent. for cows suckling, having gone dry, etc.	—	73,773
		1,401,690
Total quantity of milk produced at 400 gallons per cow	—	560,674,000
Less milk consumption at 35 gallons each on number returned at June 30, 1907	—	57,229,603
Less 3 gallons for each young pig, based on annual production of 14 pigs to each breeding sow	—	9,948,320
		47,286,923

Leaving available for milk, butter, and cheese	513,387,075
Creamery butter	140,000,000
Factory butter	57,120,000
Cheese, 2,000 cwt., at 1 gallon of milk to 1 lb. cheese	224,000
134,000 gallons of milk cream, at 15 gallons of milk to 1 gallon of cream	2,010,000
	199,354,000

Leaving available for direct consumption and production of farmers' butter ... 318,516,045
How this quantity is divided up is conjectured. Either the consumption of milk per head of the population has to be assumed or the consumption of butter.

If we assume that the consumption per head of the population is 20 gallons of milk, then 87,871,460 gallons are required, leaving 230,644,585 gallons of milk for home butter-making, which at 3 gallons of milk to the lb. of butter represents 69,897,495 cwt. of home-made butter.

	cwt.
Creamery butter produced	500,000
Factory butter produced	170,000
Farmer's butter produced	69,897,495
Total production	1,340,891
Butter imported in 1907	63,388
Total	1,404,279
Butter exported (exclusive of packed port and passenger train traffic)	618,604
Leaving for home consumption	688,925

Which equals 15 lbs. per head of the population.

APPENDIX E.

(See Questions 2570 and 2580, page 62.)

THERMAL DEATH-POINT OF PATHOGENIC BACTERIA.

- (1) From Sanikienk & Kouroun: "Bacteriology of Milk."

"Flügge states 148°F. (70°C.) for 30 minutes will kill the specific organisms of tubercle, diphtheria, typhoid fever, and cholera."

"Maceday & Hovelt have demonstrated, by culture alternate heating and cooling, that 70°C. (158°F.), maintained for half a minute, is generally sufficient to kill saprophytic organisms and such weak types of pathogenic bacteria as

B. diphtherie, B. typhose, and B. tuberculosis. (Journal Institute of Preventive Medicine—Transactions—18 Series)."

- (2) From "The Control of Bovine Tuberculosis"—U. S. Department of Agriculture—Bureau of Animal Industry—Circular 173.

"All milk from tuberculous cows that is used for food purposes should be thoroughly pasteurized. This means that it must be heated sufficiently to kill or render harmless any tubercle bacilli that may be present in it. For this it is necessary to heat the milk for 30 minutes at 148°F., or for 3 minutes at 176°F. All pans or other utensils used in connection therewith to be sterilized."

- (3) 35th and 36th Annual Reports, Bureau of Animal Industry, U.S.A.—"Viability of typhoid bacilli in Milk, Butter and Cheese; Henry J. Washburn, Senior Pathologist of the Division."

"60°C. (140°F.) for 20 minutes, or 80°C. (176°F.) momentarily, will deprive typhoid bacilli, and also the specific organisms of diphtheria, dysentery, cholera, and tuberculosis of all their harmful powers."

- (4) L. A. Rogers, Bacteriologist, Dairy Division, Bureau of Animal Industry, Department of Agriculture, U.S.A.

In Year Book, 1905, p. 186—

"The lowest point at which the bacillus of tuberculosis is destroyed is 140°F. for 30 minutes, and the milk must be constantly stirred. In the continuous-flow method, where the milk is maintained at the pasteurizing temperature usually for only 20 or 30 seconds, the temperatures used range from 156°F. to 186°F. The results at 160°F. are uncertain, and any temperature below this point has little or no beneficial effect."

(3) Danish Pasteurizing Law.

(Question 2459.)

"By Section 8 of Law of 14th February, 1904, on tuberculosis in cattle and pigs, inspection of dairies to control the pasteurization of milk, butter, milk, and cream is to be made by the veterinary police and by the inspectors appointed under the Butter and Margarine Act. The police take annually about 15,000 samples and the inspectors 2,500 samples, which are sent to be tested at the Laboratory for Agricultural Research. About three per cent. of the samples are found to be insufficiently heated. The temperature to which the milk, buttermilk, or cream was formerly heated was 86°C (187°F.), but was reduced in 1904 to 80°C. (176°F.). The separator sludge must be heated."

(6) Foreman, in his "Agricultural Bacteriology," states that—

"Many experiments have shown that temperatures of 60°C, maintained for 20 minutes, 65°C. for 15 minutes, 70°C. for 10 minutes, are usually sufficient to destroy the organisms, but dairy men think that nothing less than 80°C., kept up for 5 or 10 minutes, suffices for absolutely reliable result."

(7.) Russell, in his "Dairy Bacteriology," states that—

"If tuberculous milk is heated in a closed receptacle, where a scalded curdhouse cannot be produced, the tubercle bacillus is killed at 140°F. in 15 to 20 minutes. . . . If milk is continuously heated to 170°F., it is certainly sufficient to destroy the tubercle bacillus."

(8) Conn, in "Bacteria in Milk and its Products," states that—

"To free the milk from the danger of distributing tuberculosis a temperature as high as 180°F. is necessary. . . . A temperature no higher than 140°F., if continued for 20 minutes, has been found sufficient to reduce the virulence of the tubercle bacilli which are in the milk so as to render them harmless."

In "Dairy Bacteriology," by Dr. Ed. Von Fereidunsky, it is stated that tuberculous milk, heated to 154-155°F. for 20 minutes, was found to be incapable of producing tuberculosis in guinea-pigs.

(10) EXTRACTS FROM "OUTLINES OF DAIRY BACTERIOLOGY," 1901.

(By H. L. RUSSELL and E. G. HARTING.)

(P. 71.)

"Treatment of tuberculous milk.—It is easily possible to heat milk or lactic by-products so as to render them positively safe. The process of pasteurization or sterilization is applicable to whole milk, and when effectively done destroys entirely the vitality of any tubercle bacilli. In making such exposure care should be taken to prevent the formation of the 'scalded layer,' as the resistance of the organism toward heat is greatly increased under these conditions. In a closed receptacle, 140°F. for 15 to 20 minutes has been found thoroughly effective in destroying this organism. A momentary exposure at 170°F. is likewise sufficient. This is the method that is almost universally used in Denmark in the manufacture of the fresh butter.

"In the treatment of factory by-products heat should also be employed. In Denmark compulsory pasteurization, at not less than 170°F. is required. This treatment prevents not only the dissemination of tuberculous among hogs and young cattle, but is equally efficacious in preventing the spread of foot and mouth disease."

(Pp. 122-123.)

" . . . It has sometimes been asserted that the tubercle bacillus is very resistant to heat, some

claiming that it is necessary to heat milk to 200°F. in order to destroy it. Other experimenters have asserted that lower temperatures would suffice, but the temperatures were still above those at which the milk is physically and chemically changed by the heating process. More recent work has shown that not all sources of error were avoided in the earlier attempts to determine the thermal death point of the tubercle bacillus, as, for example, it has been shown by the authors that the 'scalded film' that forms on the surface of milk when heated in an open vessel will protect the bacteria imbedded in it. It has also been shown by the authors that a temperature of 140°F. for 30 minutes, or 160°F. for one minute, will destroy the tubercle bacilli in milk, in case the heating is done with sufficient thoroughness to insure all particles of the milk being heated to the same temperature for these periods of time.

"The pasteurization of milk can be done in such manner as to impart to it good keeping qualities, and to expose its freedom from pathogenic bacteria, and yet not impair its physical and chemical properties; but much of the so-called pasteurized milk placed on the market is not treated in accordance with proper hygienic methods."

(11) EXTRACT FROM ANNUAL REPORT OF THE LOCAL GOVERNMENT BOARD FOR IRELAND FOR THE YEAR ENDED MARCH, 1901.

(By) CHAMBERLAIN, ENTIRE FRER, & Co.

Observations on the Relative of "Creamery" to the spread of Enteric Fever in Ireland, and on the necessity for Pasteurization of "Creamery" products, by E. J. MacDonnell, M.A., M.D., D.P.H., Bacteriologist to the Local Government Board.

" . . . According to the experimental researches most recently carried out, those of Bang, performed at Copenhagen, and laid before the recent Tuberculous Congress in London, and those of Herr, carried out at Breslau, under the direction of Flügge, and published in the 'Zeitschrift für Hygiene' (Vol. 5, p. 1), exposure of the milk to 170°F. for about 10 minutes will certainly destroy any tubercle bacilli that may be present. Even a lower temperature (150°), kept up for a quarter of an hour, would probably suffice, provided that frothing could be prevented. As, however, the machinery in use at creameries is on the continuous-flow principle, and the milk is accordingly at its maximal temperature for a period of probably less than a minute, such a temperature must be fixed on as will certainly destroy the tubercle bacillus within that short period. According to the latest available

information a temperature of 185°F., if maintained for half a minute, will destroy tuberculous milk or cream of all varieties. In actual practice, however, allowance must be made for irregularities in the working of the machine, the formation of foam, and the adherence of the outfall-point of over-heated milk with insufficiently-heated milk. In order to counteract these drawbacks, and to ensure that every part of the milk shall be brought to the desired temperature, it seems advisable to specify a higher point, viz., 190°F., as that to which the milk ought to be brought on continuous-flow machines. I would further suggest that the term 'pasteurized' (as applied to milk), be reserved for milk that has been so treated. Storch's disphosphatase test affords an easy method of ascertaining whether a given sample has been brought to 181°, which is all that is really necessary. . . .

APPENDIX F.

(See Questions 10001-4, page 516.)

GREAT SOUTHERN AND WESTERN RAILWAY.

Rates for the Conveyance of Goods by Goods Train Service.

HEAD RATES.

Miles	Number of Animals.								Wagon For *part Wagon.	Rates For Wagon.
	1	2	3	4	5	6	7	8 to 25		
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
25	3 6	5 3	7 4	9 5	11 3	13 9	11 9	11 9	11 9	17 3
50	4 8	8 8	12 0	15 8	19 1	20 1	20 1	20 1	20 1	29 8
75	5 6	10 0	14 4	19 0	23 3	26 9	26 9	26 9	26 9	39 8
100	6 4	11 8	17 0	22 4	27 5	32 6	33 8	33 5	33 5	46 8
125	7 1	13 2	19 3	25 3	30 1	36 11	36 8	36 8	36 8	56 0
150	7 10	14 7	21 5	28 2	34 9	40 3	45 11	45 11	45 11	68 5
175	8 7	16 1	22 7	31 1	38 4	45 8	52 2	52 2	52 2	77 9
200	9 3	17 6	25 8	34 9	42 0	50 9	57 8	58 5	58 5	87 3

(*Maximum number at Part Wagon Rate—55)

Rates for the Conveyance of Goods by Passenger Train Service.

Miles.	In Guard's van, in crates or bampers; not more than three in one consignment; Per Head.	Not in crates or bampers	
		Per *Part Wagon.	Per Wagon.
	s. d.	s. d.	s. d.
25	2 0	15 8	22 11
50	2 5	26 9	39 7
75	3 0	38 8	52 11
100	4 0	44 7	66 3
125	5 0	52 11	78 8
150	5 0	60 3	91 3
175	6 0	69 7	103 8
200	6 0	77 11	116 3

(*Maximum Number at Part Wagon Rate—35)

INDEX.

A.

ABATTOIR. Slaughter of all animals in public, advocated, 4560-4.

ABORTION, contagious. See "Contagious."

ADULTERATION OF MILK.

As to the legal standard of pure milk, see "Milk, legal standard of."

Possibility of pure milk being under the legal standard, 276-280, 1075-1110, 5149, 5120-52, 6039, 9108-6, 9108-9207.

But the average milk of a herd should be up to standard, 1004, 6080, 9049, 9437-44, 9106, 9332-4. Difference between morning and evening milk, 285-287, 1060, 1094, 7011-2, 9248, 9300-1.

If genuine milk is not up to the legal standard it should not be sold as milk, 5561-5.

Few of bona fide milk producers for prosecution for selling adulterated milk, 289, 1161, 3008-9.

Proposed taking of mixed samples for prosecution purposes, 1111-22.

Milk which is kept just at the legal standard, 6036-7. There should be power to take samples immediately after milking in doubtful cases, 6038-51, 8405-6.

How milk may be reduced in quality by carelessness and not tried, 8470.

Vendor of adulterated milk should be prosecuted, notwithstanding that he may hold a warranty, 394-6, 7330-1.

Dairyman's reputation is at the mercy of dishonest employees, 3234, 3831-32, 3900-11, 3904-61.

Analyst's form of certificate in prosecutions for, 279-281, 1127-29, 3313-4, 7039-10.

Proposed appointment of a milk analyst for Ireland to test all samples, 6860.

In prosecutions there should be a right of appeal to the County Court Judge, 5849-50.

Prosecutions in Belfast for adulterating milk and butter, 6037-21, 7032-53.

Inadequate fines for (Belfast), 6074-80, 6038-41. Carba, 6012-9.

Effect of magistrates not convicting where milk is a little below the legal standard, 8990-9404.

Good and poor milk is sold at same price, 6055-61; effect on men selling selling the better quality, 7048.

"Guaranteed" milk as a preventive of the abstraction of fat, 7097, 7085-91.

Criminality of adulterating milk with water, 8512.

The sale of milk which is under the 3 per cent. standard of butter fat should render the vendor liable to prosecution for adulteration, 8507-14.

ADKINS, DR. SAMUEL, M.A. (Medical Superintendent Officer of Health, Lurgan).

Would license all milk-vendors in urban districts, but not in rural districts, 6099-72.

The exclusion of the Medical Officer of Health in administering the Dairies Order is inadvisable, 8073-5, 8087-91, 8094-6.

Outbreak of infectious disease traceable to milk in adjoining district, 8077-9; due to a "curier," 8080.

Objections to the general application of the Widal test, 8081-2, 8092-8702; but there should be power to apply the test in a case of suspicion, 8083-4, 8705.

The sale of milk which is under the 3 per cent. standard of butter fat should render the vendor liable for prosecution for adulteration, 8707-14.

Advocates the appointment of a County Medical Officer of Health, independent of police practice, 8715-28.

Instead of giving local authorities power to inspect outside dairies, would insist on the uniform administration of the Order, 8739-39.

ALBULACTIN. Use of, 4969-5003.

ALLOTMENT ACT, English. Advantages of, 5535-7.

ANALYSIS. Forms of certificate of, for prosecution purposes, 279-81, 7009-10, 1127-29.

ANALYST, County. Practice as to appointment of, 8095.

ANDERSON, H. A. (Secretary to the Irish Agricultural Organisation Society).

Origin and objects of the I.A.O.S., 960.

Connection of the Society with co-operative creameries, 962.

Objects of the Agricultural Co-operative movement:—

Financial advantage of co-operators, 963.

Improved standard of Irish butter, 964.

Recapture of Irish and British butter markets, 964-966.

Domestic milk supply affected by creameries; absence of complaints, 967.

Creameries sell milk for local consumption, 968; their rules do not forbid sale of milk for domestic use, 968-972; it would be more profitable to sell the milk retail than make it into butter, 974-976.

Value of milk has been increased by creameries, 979.

Cases deterring the retail sale of milk by farmers:—

Dishonesty of employees, 977.

Operation of Dairies Order, 977-979, 1012.

Criticism of requirements of the Dairies Order, 980, and of its partial enforcement, 979, 980-989;

suggests its extension to home-butter makers, 980, 989-990.

Absence of dairying in the Midland belt of Ireland, 990-995.

Winter dairying essential to maintenance of Irish butter markets, 996-7; for this, tillage is essential, 998-9; the soil and climate of Ireland are suitable for winter dairying, 1000-1001.

Welcomes proposals tending to the production of clean milk, 1005-1006; beneficial influence of creameries in this direction, 1044-5, 1046-1065.

Low wages of agricultural labourers, 1006; resulting in a scarcity of labour, 1007. See wages in Denmark, 1034.

Relations between farmer and labourer affected adversely by:—

Provision of labourers' cottages, 1008-1010; operating against the labourer obtaining milk from the farmer, 1010.

The Workmen's Compensation Act, 1017-1020.

Proposed means of supplying milk to households in creamery districts, 965, 1013-9, 1049-52, 1057-9.

Suggested means of increasing milk production:—

Establishment of cow-leasing associations, 1031-1032.

Cows' milk as a substitute for cows' milk, 1035-8.

Pasteurization of separated milk, 1039-40, 1064; temperature for pasteurizing, 1035. Pasteurized milk as an article of food, 1050.

Need of improved conditions for housing of cows, 1042-3.

Transport of milk and butter by train, 1069-9.

ANTRIM RURAL DISTRICT.

Milk is sent to Belfast and the creameries from the district, 8734-48.

There is no scarcity of milk, 8737, 8833-37.

The Council have appointed officers under the Dairies Order, 8745; the regulations as to ventilation, etc., are enforced, but no exemption as to the health of the cows is made, 8747, 8738-51, 8809-22.

The Council object to Belfast officials interfering with the administration of the Order in the district, 8750-65.

Uniform administration of the Order is the remedy for complaints, 8791-6.

ATHENRY. How the milk problem was dealt with in, 8410-22, 8461-3; its results, 8487-49.

AYRSHIRE COWS do well on poor land, and hence are more suitable for the South, 9263.

B.

BABIES' BOTTLES. Long tube should be made illegal, 5033, 5222, 7773-80.

BABIES' CUBES, Belfast. See "Belfast."

BACTERIA IN MILK.

Noted conditions favourable to bacterial growth in milk, 573.

Lactic acid possibly not quite harmless, 1670.

Standard of uncontaminated milk recommended, 4222, 5285-91, 6705-6, 8386, 9237-35, 9711-3.

The greatest bacterial content is in the first two or three quarts, 9708.

Fewer bacteria in machine-, compared with hand-, milked milk, 6709, 9630-42.

BACTERIOLOGICAL EXAMINATION OF MILK of towns recommended, 595, 579, 1314-6, 1331, 6703, 6785.

The most reliable test is by inoculation, 501, 5053-8.

Necessary to detect tubercle bacilli, 5291.

Microscopical examination is recommended, 306.

Microscopical examination is insufficient, 508.

Bacteriological examination in Belfast. See "Belfast."

Bacteriological examination alone is not sufficient to safeguard public health, 6709.

BAILIE, DR. H. W. (Medical Superintendent Officer of Health, Belfast).

Favours licensing, instead of registering dairy-keepers, 6436-40.

Registration is at present compulsory on the local authority, irrespective of suitability of premises, 6448-53.

Satisfactory conditions re Belfast milk supply, 6444-7.

Proscriptions to secure clean milk supply, 6451-55.

City milk cleaner than country milk, 6599.

No power to prosecute for sending in dirty country milk, 6487-16, 6517-20.

Doubts the necessity of subjecting all persons in the milk trade to the Widal test, 6476-82.

The Dairies Order should apply to bottlemilk, and home-butter makers, 6489-5.

Outbreaks of infectious disease traced to milk supply, 6496-6504.

Went of appreciation of milk as a food, 6505-30, 6545-51, 6586-91.

Artificial feeding of infants, 6630-53.

Failure of outside dairies to comply with the Dairies Order, 6636-39, 6644-6601.

Increasing difficulty of Belfast authority re pure milk supply, 6623-6.

No lack of milk in Belfast, 6533-5.

Municipal dairy farm desirable if commercial milk did not keep up to standard, 6544-5.

Municipal depots for distributing milk would be costly and cumbersome, 6565-70.

Working of the Municipal Milk Fund, 6546-8.

There is no Municipal Infants' Milk Depot, 6534-41.

Compulsory cooling of milk recommended, 6480, 6534-7.

Slaughter of all animals at the abattoir advocated, 6590-4.

Number of shops which ceased to sell milk rather than comply with the Corporation regulations, - 6603-4; and number of new shops, 6603-5.

Proscriptions for adulterating milk and bottlemilk, 6603-23.

Inadequate penalties, 6607-6610.

Denies that milk is of poorer quality in the poorer districts than other parts of the city, 8777-80, 8787.

Complaints as to want of cleanliness have not been made to the Public Health Department, 8399.

The quality of milk cannot be judged by its appearance, 8777-8.

Policy of the Corporation as to prosecuting where milk is a little below the legal standard; effect of magistrates not convicting in such cases, 8396-8404.

Particulated milk is not popular, nor so good as fresh milk, 8406-15.

BAILIE, SAMUEL, M.R.C.V.S. (Veterinary Inspector, Newtownards Rural District).

Staff appointed to work the Dairies Order, 8101-5.

BAILIE, SAMUEL—continued.

Scarcity of milk in district attributable to sheep farming, and the operation of the Dairies Order, 8111-9, 8125-9.

Would extend the Order to all cow owners and byres, 8130-2, 8174-29, 8229-32.

And Government should grant loans to put byres in order, 8133-4, 8135-61, 8250-6.

It is to the farmer's interest to put his byres in order, 8139.

Danger of having tuberculous cows in a herd, 8133, 8183-94.

Tuberculin test; satisfactory results from, 8134-40.

Would increase the A19 compensation limit for cows compulsorily slaughtered, 8147-9; it would lead to the more speedy detection of diseased animals, 8150-5.

Does not favour licensing cowkeepers, 8164-73.

The breeding of short-horns has an indirect effect on milk production, 8200-1.

Good milking strains should be encouraged, 8202-11.

Inducement locally of Lady Dunith's improved breed of goats, 8236-22.

Farmers not allowed to sell milk to their labourers unless registered, 8239-6.

Farmer's supervision by an inspector appointed by a Central Authority, 8239.

But objects to inspection by another local authority, e.g. Belfast, 8239-45.

Farmers do not provide milk for labourers who do not work for them; 8246-9; but milk is procurable in some cases, 8253, 8256-8300.

Reduction of tuberculous cattle in district, despite increase in Belfast City, 8259-66.

Considers a contribution from rates or taxes justifiable, towards supplying a district with milk in which there is scarcity, 8125, 8111-4.

BALTINGLASS and District.

Enforcement of Dairies Order in, 5631-8, 5642-4, 5713-37.

Scarcity of milk, 5650-61, 5660-8, 5696.

BANG METHOD of stamping out tuberculous in cattle described, 7313-6.**BANGOR URBAN DISTRICT.**

Rigid inspection under Dairies Order in, 8315-23; and there are stringent by-laws, 8305-25.

Proper milkshops insisted on, 8340.

BARCROFT, MISS MOLLY. (Secretary to the Newry District Nursing Association).

Children in Newry do not get sufficient milk, 10296-79.

Causes restricting the keeping of cows, 10280-3.

Health of the juvenile population prejudiced by the scarcity of milk, 10404-8, 10333-5.

Newry milk is of poor quality, 10400, 10350-3, 10364-79; the Borough Authority should ensure an adequate of Jersey milk to enrich it, 10420-8, 10423.

Work of the Jubilee nurse, 10271, 10224-32, 10407-8.

BARRY, JOHN McCLEURE, M.R.C.V.S. (Veterinary Inspector to the Belfast and Castlereagh Rural District Council).

The average cow population in registered dairies in both districts is 3,508, 8897-92; number of registered dairies, 8901.

The Dairies Order is strictly enforced, 8863-5, 8876-83.

Inadequate fines imposed for breaches of the Order, 8893-9, considerable fines can be paid without financial loss, 8870-1.

Favours licensing of milk producers instead of registering them, 8872-5.

Need of making the Dairies Order apply to baker-milk, 8882-5.

Tuberculosis Prevention Act; animals slaughtered under, 8880-3, 8886.

Would extend the scope of the Act, 8894-5.

Compensation payable for animals slaughtered; very careful consideration necessary before raising the limit, owing to varying local conditions, 8890-9090.

The State should pay the compensation, 8911-7.

Practical objections to the tuberculin test, 8889-93, 8938-72.

BARRY, JOHN MCCLURE—continued.

- Milk records; the keeping of, often falsify the cow-keeper's judgment, 8622-7.
 Behaves the milking stock has deteriorated, 8626-2;
 breed leading a possible cause, 8691.
 Favours administration of the Order by a Central Board; defines its leading duties, 8645-8, 8692-3.
 Would not object to Belfast Corporation sending a professional man to inspect rural dairies, 8684-7.
 Explanation why rural dairies are not up to the city standard, 8688.
 Would make the notification of disease among dairy-men, their employees and cattle, compulsory on certain persons, and would pay a notification fee to the dairyman, 8648-9.
 Ulster troubles a serious danger to the public health, 8660, 8647-53.
 Would give the Medical Officer of health certain powers under the Order, 8675-80.
 Cows will keep clean in a properly constructed stall, 8609-8.
 Suggests that dairymen be specially educated as to the preventability of tuberculosis, 9014.
 Qualifications that should be required of a lay dairy inspector, 8615-8.

BARRY, REV. ROBERT. (Parish Priest of Oldcastle, Co. Meath).

- Deficiency of milk in Oldcastle parish, 2140-33, 2155;
 not due to the economy system, 2205; but to the tenure of land, 2151-3.
 This leads to the use of other foods injurious to the development of the race, 2156-65.
 The rearing of store cattle has been inimical to dairying, 2186.
 Remedy proposed; divide the grazing land into small holdings for tillage, 2167-72.
 The effect would be, and has been, to increase the facilities for obtaining milk, 2174-5.
 Power of Estates Commissioners to reserve a cow plot for laborers on sale of an estate, 2177.
 Management of such a plot at Oldcastle, under Trustees, 2238-2264, 2268-19, 2274, 2245-54, 2270-6.
 Difficulty of getting Trustees, 2250-9, 2209-18.
 Trustees are not responsible for seeing that users of the cow plot have proper cowsheds, 2218-20.
 The scheme encourages thrift, industry, and sobriety, 2265-7.
 Suggestion that the Estates Commissioners make advances for byres and milk stores to tenant purchasers, 2179-82; and that a larger area be reserved, part to be grazed and part cropped, 2235-7.
 Means of providing laborers with cows, 2220-8.
 Limitation of use of plot to cows, 2226; as to disproportionate use of plot by one individual, 2229, 2263; responsibility in case of default, 2231.
 Site and use of the new holdings, 2236-42.
 Alternative scheme; District Council to contract with co-operators for a public milk supply, 2268-9.
 Buttermilk should be generally available, 2286-90.
 Distribution of milk to school children at the school, 2244.

BARTER, SIR RICHARD.

- Experience as a breeder of pure bred goats, Co. Cork, 2123-46.
 Goats as a preventive of abortion in cattle, 2122.
 Goats suitable as a means of supplying milk among soldiers, 2141.
 Propagation of goats in Ireland; encouragement by Department of Agriculture, 2080.

BELFAST.

- Officers appointed under the Dairies Order, 6668-71, 6232-40.
 Compliance with Dairies Order enforced, 6645-56, 6690-3, 7397-83, 7412-6.
 The inspection, as carried out, is reasonable, 7544-7.
 Condition of city dairies is satisfactory, 6238-41.
 Cleanliness is enforced in the milkshops, 9441-7.
 Satisfactory conditions in Belfast milk supply, 6444-7.
 The city milk is cleaner than the country milk, 6466.
 Constant supervision necessary to keep up standard of cleanliness, 6696-73.
 Outbreaks of infectious disease in; traced to milk, 6081, 6093-6102, 6496-504.

BELFAST—continued.

- Power of inspection of outside dairies supplying milk to the city sought, 6084-92, 6112.
 Claim of Corporation to inspect outside dairies, see "Faggeton."
 Belfast Rural District dignitaries case, see "Belfast Rural District."
 Failure of outside dairies to comply with the Dairies Order, 6626-30, 6204-6001, 7126-7112.
 Increasing difficulty of Belfast Authority to pure milk supply, 6022-6.
 Outside inspection of cows and byres made ultra strict by Dairy Inspector, 6386-93, 6694-4, 6644, 6714-20; defective byres reported on, 6728-33.
 Increasing difficulty of making inspections, 6734-5.
 Bacteriological examination of milk in, 6144-7, 6291-7, 6285-43, 6737-8, 6463.
 Results, 6769-68, 6783-9.
 Samples of milk taken for analysis and bacteriological examination, 6865-6011.
 Method of taking samples, 6993-3.
 Form of analyst's certificate, 7009-10.
 The Corporation does not prosecute when the butter fat is below 2.6 p.c. for a first offence, because magistrates are unwilling to convict, 7042-53, 6350-6464, 9089.
 The average quality of Belfast milk must not be judged by the samples taken of it, 7482-9, 7537-9, 7588-4, 7611-3, 8586-9.
 Poor quality of milk sold in poor quarters of the city, 7641-5, 7731-9, 7708-7001.
 Denied by the Medical Superintendent Officer of Health and others, 6977-83, 6997, 9342-5, 9418; quality cannot be judged by appearance, 6977-8.
 Prosecutions are not undertaken, because of the difficulty of securing convictions, 7502-7; as to means of raising public interest, 7522-6.
 Prosecutions desirable whenever milk does not come up to legal standard, 7764-70.
 Prosecutions for adulterating milk and buttermilk, 6907-21.
 Inadequate fines in convictions for adulteration of milk, 6674-80.
 Courts, 6912-9.
 No lack of milk in, 6333-5, 7000.
 Number of cowkeepers and milk shops in, 6511-2.
 Storage of milk in suitable premises; powers under the Belfast Committee Bill, 6162-4.
 Price of milk in, 6262-8, 6536, 7023, 9238-41.
 Price increasing, 7579-84.
 Good and poor milk is sold at same price, 6262-61; effect on men selling the better quality, 7048.
 Price of separated milk, 6975-82, 7013-22, 7697-74.
 Sale of, in Belfast, 9426-30; does not lead to adulteration of whole milk, 9493-8.
 Restrictions in sale of milk in butchers' shops, 7060-1.
 Milk has improved in quality since the 1840's, 8428-61, 8476-1.
 There are no milk distributing barrows in Belfast, 9437-49, 9403-7.
 Children of working people in; do not get sufficient milk, 6205, 6649-61; due to conditions of labour and limited means of the parents, 6267, 7888-91, 7860-6, 7180-8.
 Result, deteriorated physique, 6208-73.
 Condensed skim milk used, 6648-50, 7052-8.
 Value of milk as a food not sufficiently appreciated in, 9236-35; even where there is money to buy it, 9467-17.
 The little milk is consumed, 7548-57.
 Appreciation of good milk in poor districts, 7736, 7854-41.
 Condensed milk could be driven out by good cheap milk, 7797-8, 7867-9.
 Municipal Milk Fund, Belfast, 9511-32, 6546-8.
 Fund not chargeable to rates, 9511; but is dependent on voluntary subscriptions, 9513.
 Origin, 9512.
 Worked through the M.C.H. and the lady visitors of the Public Health Committee, 9515.
 Provides milk for infants of parents temporarily in necessity, 9519, 9527.
 Milk is given to mothers also, if necessary, 9538.
 The fund is administered by trustees, 9526-1.
 Typical cases assisted, 9532.
 There is no Municipal Indents' Milk Depot, 6834-41.

BELFAST—continued.

Babies' Clubs under the W.N.H.A., Belfast, 7625.
Dr. Elizabeth Bell in charge, 7623; Miss Baillie
acts as nurse, 7701.

Locality of the three clubs, 7628.
Work of the clubs, 7628-35, 7631-34, 7710-10,
7728-9, 7731-7, 7782-99, 7847-59, 7892-6, 7899-
7908.

Need of extending the work, 7822-6.
There is no need for a municipal dairy, 9602-4.
Prosecutions to secure clean milk supply, 6454-65.

Complaints as to lack of cleanliness have not
been made to the Public Health Department,
8577.

The Public Health Committee have authorized their
inspectors to prosecute without reference to the
Committee, 6341.

Number of shops which ceased to sell milk rather
than comply with Corporation regulations, 6602-4;
and number of new shops, 6605-6.

Cowkeepers who have gone out of the business be-
cause of the Dairies Order, 6681-7, 6685.

Good class of cow kept in Belfast, and good results
obtained, 7192-7602.

Dairymen keep cows only for one milking period,
7398-7400, 7409-12, 7502.

Numbers and value of cattle, etc., exported from,
6395-9.

Tuberculous cows sent from Dublin, etc., to, for
slaughter, 6189-90, 6208-13, 6242-9, 9343-54.

Reason for abnormal slaughter of cows in, 7126-9.
Prevalence of tuberculous amongst cows and heifers,
1908-1911, 7171-7.

Reduction of tuberculous cattle in adjoining district,
despite increase in Belfast, 6259-68.

Cattle, indiscriminate slaughter of, in Belfast,
7137-39.

The good calves are not slaughtered, 7458-9.
Vote of thanks to the Commission on termination of
proceedings in, 9702.

BELFAST RURAL DISTRICT.

Average cow population in registered dairies in,
6607-62.

Number of registered dairies, 8981.

The Dairies Order is strictly enforced, 8983-5, 8979-81.

The Rural Council meet the Belfast city officials
making inspections in their district, 9666-7,
9673-85.

In case of complaint the Local Government Board
should see that the Dairies Order is enforced,
9661-64.

But the Rural Council are quite willing to co-operate
with the Belfast city officers in discovering the
source of an outbreak of infectious disease, as
indicated by correspondence produced, 9667-70,
9675, 9682-3.

In the case cited the rural M.O.H. gave a clean
bill of health, and subsequently the Medical
Superintendent Officer of Health, Belfast,
found diphtheria germs in a dairy assistant's
throat, 9699, 9671-3.

Extracts from minutes of Public Health Committee,
Belfast, as to tracing an outbreak of diphtheria in
Belfast City to milk supplied from Belfast Rural
District, 9701.

BELL, DR. ELIZABETH. (Representing the W.N.
H.A. in Belfast.)

Work of the Babies' Club, Belfast, under the W.N.
H.A., 7622-46, 7686-84, 7710-20, 7789-9, 7771-7.

Advocates contribution from public funds towards
cost of milk for infants in necessitous cases, 7643-9,
7659-60.

Poor quality of milk sold in poor quarters of Belfast,
7651-5, 7701-9.

Wishes to see prosecutions whenever milk does
not come up to legal standard, 7784-70.

Recommendations guaranteed milk as a means against
adulteration of fat, 7697, 7666-91.

Suggestion that small consumers in same street might
be organized to take supplies from the same milk
cart, 7692-7.

Does not recommend separated milk for growing
children and nursing-mothers, 7703-7.

Considers the legal standard for pure milk too low,
as regards butter fat, 7740-55.

Favours use of bottled milk, 7697-7702, 7760-3.

Would make the long-tube bottle illegal, 7778-81.

BELL, WILLIAM A., J.P. (Chairman of the Belfast
Rural District Council.)

The Belfast Rural Council resent the Belfast Public
Health officials making inspections in their dis-
trict, 9666-7, 9673-80.

In case of complaint the Local Government
Board should see that the Dairies Order is
enforced, 9661-64.

But the Rural Council are quite willing to co-
operate with the Belfast city officers in dis-
covering the source of an outbreak of infec-
tious disease, as indicated by correspondence,
etc., produced, 9667-70, 9675, 9682-3.

In the case cited the rural M.O.H. gave a clean bill
of health, and the Medical Superintendent Officer
of Health, Belfast, subsequently found diphtheria
germs in a dairy employee's throat, 9699, 9671-3.

BELL, WILLIAM R. (Clerk of the Nos. 1 and 2
Newry Rural District Councils, and Hon.
Secretary to the Newry Agricultural Show.)

Number of cowkeepers, No. 2 Newry Rural District,
11436-8.

Milk supplied to mill hands a Dossbrook at cheap
rates, 11489-92.

The Dairies Order is enforced, 11443-7; prosecutions
were necessary at first, 11448-9; and the regu-
lations inflicted substantial loss, 11450-2; method
of enforcing the Order, 11585-601.

The Order has put a few people with unsuitable
premises out of the milk business, 11438; some
became home butter makers, 11444-7.

The milk of the herd at the Workhouse does not fall
below 3 p.c. of butter fat, 11460-7.

The best cows are shipped to England; effect
demonstration of the stock, 11468-73.

For milk, would breed from a bull with a milking
strain, 11474-81.

Newry Agricultural Show; mode of awarding prizes to
the dairy class, 11469-9.

It is proposed to form milk-testing stations to
check milk records, 11485-6.

Value of milk records, 11486-9, 11490-3.

Security of milk in Newry Rural District, 11494-200,
11608.

Cows are kept in the district, and are encouraged by
the Newry Show, 11503-8.

Insurance of live stock; need of, at reasonable rates,
11585-60.

Cow suspected of being diseased is at present sold out
of the district, 11545-6.

There should be power to order slaughter and
pay compensation, 11547.

Two-thirds of the market value should be paid,
11529-32; and an extra indemnity offered to
the farmer to report a case voluntarily,
11548-51.

Department's scheme to test milk cows, 11523-60.

Newry Agricultural Show Society proposes to form
contesting associations, and to act as supervisor,
11560-72; the committee to affiliate with the
Society, 11579-84; the Society will be responsible
to the Department, 11573-8.

No bull should be allowed for public use unless it
reaches a certain standard, 11621-2.

MILK, Milk Supply in.

Milk supplied by Lord Rose; quantity and conditions
of sale, 5601-8.

Price, 5s. a quart all the year round, 5181-8.

Conditions previously existing in, 5609-5100; now
existing, 5169.

Lord Rose's dairy is a commercial undertaking,
5101-3, 5101-3, 5224.

The average yearly yield per cow is over 600 gallons,
5169-19.

Only the best quality of milk is sold, 5119; objections
to selling two qualities of milk from same dairy,
5211-24.

Besting cows are removed from the herd, 5119-20,
5199-205.

Methods adopted to produce the best quality, 5139-50.

The increased supply has created an enormously in-
creased demand, 5139.

Use of condensed milk has almost ceased, 5199.

BLAKISTON-HOUSTON. Advocates breeding for
milk from bulls of milking strain, 9696-9700.

BOEDDICKES, DR. OTTO. (As Lord Rosse's Dairy at Birr.)

Milk is supplied in Birr by Lord Rosse; quantity and conditions of sale, 5291-5.

Price, 2d., a quart all the year round, 5291-8. Conditions previously existing in Birr, 5000-5100; and now existing 5100.

Lord Rosse's Dairy is a commercial undertaking, 5101-3, 5191-3, 5224.

Milk records kept, average yearly yield per cow over 600 gallons, 5103-19.

The same quality of milk, viz., the best, is sold to everyone alike, 5123.

Objections to selling two grades of milk from same dairy, 5211-24.

Heating cows are removed from the herd, 5119-30, 5199-305.

Methods adopted to produce milk of the best quality, 5199-30.

Pure milk may fall below the legal standard for butter fat, 5149, 5159-62.

Influence of feeding on butter fat in milk, 5152-6.

A large milk yield from a cow is not necessarily of poor quality, and vice versa, 5156-7.

A consistently bad milker is not to be improved by feeding, 5163-5.

The increased milk supply in Birr has created an enormously increased demand, 5169.

Use of condensed milk has almost ceased, 5163.

Better local inspection of dairies desirable, 5172-3, 5188-90.

Suggests that the Department should give dairy lectures in urban districts, 5178-87.

Private enterprise preferable to public depots as a means of supplying milk, 5225-34.

Westphalian method of constructing a byre, 5235-40.

BRATTAN, NURSE. (Representing the W.N.H.A., Belfast.)

Acts as nurse to the Babes' Club, Belfast, under the W.N.H.A., 7781.

Work of the Babes' Club, 7180-99, 7847-59, 7893-5, 7899-7903.

Need of extending the work, 7922-4.

Milk is not purchased more generously, because of financial inability of work people, 7893-94, 7903-5, 7893-8.

The quality of the milk supplied to the slums is not worth the price charged, 7798-7801.

Prosecutions are not undertaken, because of the difficulty of securing convictions, 7832-7; as to means of securing public interest, 7832-6.

Licensing milk vendors would help to ensure pure milk supply, 7897-8.

Appreciation of good milk in poor districts, 7794, 7814-21.

Condensed milk could be driven out by good cheap milk, 7797-8, 7837-9.

Separated milk: price of, 7867-74.

Danger of fraudulent substitution of, for whole milk, 7904-8.

BROWN, DR. ROBERT. (Medical Officer of Health, Bathrooms Urban District.)

Need of a pure milk supply, 2890-1.

Pasteurising and sterilising milk should be avoided if possible, 2817-8, 2844, 2856-65.

The Urban Council should have power to inspect the cows leaving the district in summer, 2821-4.

Inspection of milk stores; for extended powers as to, 2832.

Dairy yards would be better outside the district, 2838-5.

Would suspend milk supply suspected of carrying disease, 2838-9.

Separated milk, food value of, 2843.

Compensation for diseased cows slaughtered; who should pay, 2852-3.

BRETT, H. C. (Chief Land Improvement Inspector under the Commissioners of Public Works, Ireland.)

Loans are made by the Boards of Works to land-owners and tenants, for the enclosure and improvement of cowholds, 1726-7, 1735-80.

Increased number of applications (a) since issue of the Dairies Order of 1908, 1726-30, 1791-4; and (b) from tenant purchasers, 1793-5.

BRETT, H. C.—continued.

A loan is made subject to the Dairies Order requirements being observed, 1737-40; as to water supply, 1744-5, 1831-2; as to fencing, 1754-5, 1824-60; as to drainage and manure pits, 1770-5, 1815-9, 1923; as to air space, 1841-72.

Loans are made for building cowhouses, 1741-9.

The minimum loan granted to tenants is £25, to owners £50, 1752-5.

Objections of borrowers to provisions of the Dairies Order, 1781-90, 1795-1800.

Provision of proper means of storing milk, suggested as a condition for making loan for cow byres, 1801-5, 1806-43, 1873-5, 1924-4.

The Dairies Order does not operate against applications for loans, 1807-9; but might be made stricter, 1809, 1829-34.

Board do not supply stock plans for cowhouses, and manure pits, 1875-95.

As to inspection of buildings during construction, 1895-1904.

Mention in the Dairies Order of "dairy," 1848-33; and "dairy yard," 1925-8.

BULLS.

PREMIUM BULLS.

Department's scheme of subsidies or premiums for bulls, 5497.

Particulars concerning, since 1901, page 177.

Loans made by Department for purchase of, 5418.

Rate of insurance of, 5418-22.

Department's inspectors willing to advise farmers what to buy, 5423.

Application of tuberculin test to, 5425-31.

In practice, the premium is divided between the breeder and the purchaser, 5432-4.

Shortage of milk attributed to (1) use of shorthorn of non-milking strain, 7272-6, 7325-6, 7403-8, 8420-1, 8286-92, 8621, 9113-4, 9320-54, 9564-82, 10425-4, 10435-1.

Cows, 11539-10, 11633, 11761-84.

In giving premiums, no regard is paid to the milk pedigree, 8298, 8390-8303, 9222.

Defect is encouraged at the expense of milk, 7310-2, 7403-8, 8471, 8486, 10425-1, 10501.

Reply to allegation that the Department's action is responsible for a decrease in the milk supply, 8435-43.

The Department should breed bulls of a milking strain to mate with farmers' good milking cows, 6293-5, 10300, 10425-9, 10477, 10685-8.

The Department should offer premiums and prizes for bulls of milking strain, 7448-51, 11467-8, 10716-6, 8203-11, 8393-8555.

Milk records essential to establish milk pedigree of bull calves, 7377-81.

Not too much stress must be placed on milk records in selecting types for breeding for milk, 10944-56.

All premium bulls should be bred from cows with a record of milk yield of not less than 100 gallons, 9214-20.

Suggestion that Department's premium be given to cows, not bulls, 5708, to prevent slaughter of good milchers, 5708-11.

The Department should insist on Ulster Cattle Committee buying bulls of milking strain, 7292-9.

The premium for a registered dairy bull should be increased, 9008-61, 10582-45.

Prices fetched by registered dairy bulls, 10685-8.

No enhanced price is given for a premium bull with a milking strain, 9525-7.

GENERALS.

Influence of bull in breeding milk-producing cows, 5491, 6292.

By selection, the milk quality of cows can be greatly improved, 5499.

For milk, would breed from a bull with a milking strain, 11474-81.

What has been done in Denmark by using bulls with a good milk strain, 7954.

Difficulty of procuring bull bred as a milk pedigree line, 5491.

Record of the dam as a milker should be given when bull is offered for sale, 7349.

Necessity of having milking steers on the side of the bull and the cow distributed, 8625-8.

Breeding for milk from Jersey and Ayrshire bulls; good demand for the calves, 1167-97, 1208-17, 9233.

BULLS—continued.

No bull should be allowed for public use unless it reaches a certain standard, 11631.2.
The half-bred bull should be superseded by premium bulls, 11870.8.

BUTTER.

Home butter makers do not come under the Dairies Order, 1869-90.
Proposed that they should. See "Dairies Order, proposed amendments."
As a means of disseminating infectious disease, 65, 3434, 6313-21, 6834.5.
Outbreak of typhoid fever probably due to butter, 5319-23.
Improved standard of butter-making under the co-operative movement, 904.
Recapture of Irish and British markets for Irish butter, 964.5.
A constant export trade means better prices, 10745.5.
Quality of, affected by pasteurisation of milk, 2455, 2610-24.
Butter-making instructions; Department's scheme described, 5521.
Butter exports decreasing, 5325-9, 5337-66.; imports increasing, 5533.
Reasons for; more milk is used to feed a greater number of calves, 5330-43, 5394-8, and in more generous quantities, 5401.
The regulation of Irish creamery butter has been injured, 5541-54.
Seven reasons specified, 5367; decreasing milk yield of cows, 10833.6.
Increased wages and standard of living would not account for the decrease, 5370-3, 5430-7; nor would the sale of butter through the public post, 5377-82; nor the sale of the best butter out of the country, 5380.7; nor the reduced number of cows or heifers, 6392.

BUTTER BILL. Will check supply of dirty milk to creameries, 3436-40.

BUTTERMILK.

Legal standard of, 5011.2.
Proposed legal standard, 348-353.
Prescriptions for adulteration, 11520-36.
Difficulty of procuring, 350-2, 11360-4, owing to creameries, 3423.
Proportion of, to whole milk supplied to the creameries, 1532-4.
Uses of, 555-556.; useful as a food, 1666-8.
Should be generally available, 2586-96.
Vendor of, should come under the Dairies Order, 3471-3, 6683-6, 6781, 6683-5, 9234.7.
Foreign bodies found in a sample of, 3990.
Proposed combination of farmers to provide, 6201-4.

BUTTERMILK CHURNS. Brass indicators in; should be illegal, 2992, 3015.

BYE-LAWS to ensure cleanliness re milk. See "Dublin."

BYRE. Waterpump method of constructing a cattle, 8235-40.

C.

CALVES. Increased number of, being reared, 5594.
5499; which are in better condition than formerly, 5401.2.
Immature calves' flesh is not a food, 6281-4.

CAMERON, SIR CHARLES, C.B., M.D., F.R.S.C.I.
(Medical Superintendent Officer of Health, Dublin.)

Dublin milk supply from country: need of power to ascertain conditions under which produced, 186, 189, 230-321.
Country milk sold in Dublin less clean than Dublin milk, 180-191; due to less rigid supervision, 1073; but is not necessarily diseased, 249-260, Dublin Corporation regulations to ensure clean milk, 235-237, 241, 332-336. Qualification of statement, 1070-1073.
Pasteurisation does not remove dirt from milk, 1074.
Improved condition of Dublin dairies, makers, and milkshops, 189, 234, 261.

CAMERON, SIR CHARLES—continued.

Superior quality of Dublin milk as compared with country milk, 343-349.
Effect of feeding on milk-producing cattle, 343-345, 368.
Quantity and quality of milk of old cows, 1123-1126.
The Public Health Authority should have power to inspect dairies and cattle outside its jurisdiction, 187-208, 304, 307.
Supervision of all cowsheds by Department of Agriculture suggested, 309-311, 330-337, independent supervising authority desirable, 309, 336.
Advantage compensation for all tuberculous cattle ordered to be slaughtered, 316-319.
Epidemics traced to milk supply, 226-238; power required to deal with milk suspected, but not declined, to be infected, 223-228, 263-266, 354-366.
Proposed application of Widal test to all persons in milk trade, to detect typhoid carriers, 229-233, 1168-1174.
Typhoid and diphtheria carriers dangerous to public health, 231-235, 1163-1166; duration of danger, 305, 1175-1179; approximate number of typhoid carriers, 231, 1167-1171.
Legal standard of pure milk, 277, 1075, 108; as to reduction or alteration of standard, 1063, 1140-1141; danger of fixing a low standard, 1069; liability of lots to vary, purity of solids, 1165; the average milk of a herd should be up to standard, 1165.
Possibility of milk being pure, though under legal standard, 276-299, 1075-1110. Difference between morning and evening milk, and cause, 291-297, 1088, 1094. Fear of base sale producer of precaution, 1101; proposed taking of mixed samples of morning and evening milk, 1111-1122.
Form of certificate given in prosecutions for adulteration, 379-381, 1127-1130.
Vendor of adulterated milk should be prosecuted, irrespective of quantity, 104-106.
Concentration of milk production in few hands desirable, 287-289, 317-319.
Powers of Sanitary Authority are sufficient to safeguard public health, 342.
Seizure and destruction of, tuberculous milk, 267-268.
Inspection and examination of country milk received at Dublin, 302-303; microscopic examination desirable, 306.
Measure traps as a danger to milk, 251-301.
Fins in milk a cause of diarrhoea, 583.
Condensed milk may carry disease, 338.
Dietetic value of cows' and goats' milk and its substitutes, 330-340, 337-343.
Condensed milk should be standardized, 344-348.
Bottlemilk; proposed standard for, 348-350.
Tuberculin test: reliability of, 1172-1183.
Phases for human consumption of milk and flesh of cow that reacts, 219, 1154-1161.

CARLOW. Milk depot, 4884-6.

CARRIERS OF DISEASE. Human beings who are *Diphtheria* carriers.

Existence of, 1165, 6066, 6328-38.
The test for detecting, 6207-8, 6733.7.

Typhoid carriers.

Existence of, 229-231, 381, 6101, 6310.
Are common, 6830-3.
Approximate number of, 388-8, 1167-71.
Unconscious of their condition, 407.2.
Presence of, indicated by the Widal test, 390, 1163; but non-carriers may react too, 1178.
Reaction to the Widal test three months after recovery from typhoid would raise suspicion that patient was a carrier, 393.
May not previously have had typhoid fever, 384, 392.
Danger of, to public health, 232-3, 410-15.
Variable exertion of typhoid bacilli by, 1179.
Duration of danger, 304, 392-9, 1175-5.
The dairy trade would assist to prevent employment of, 3544-9.
And see also "Widal Test."

Typhus carriers.

Existence of, 1165.
Existing legislation to prevent spread of disease by, needs modernising, 6296-300.

CARSON, THOMAS. (Dairy farmer, Rathfriland, Co. Down.)

No scarcity of milk in the district, 11633-7, 11638-44; very small quantity of milk used in households, 11638-31, even where there are children, 11638-4. The dairy cow has deteriorated since the extinction of the old Irish cow, 11647-55; cattle have improved in quality as stores, 11636.

Distinction drawn between the fleshy and the faty Shortbourn; the former is a satisfactory milk producer, the latter is not, 11646-5.

Records of Jersey and Ayrshire crosses for milk and beef, 11695-72.

Judges milk yield of each cow by observation, 11673-0. Has not found that if a cow is good once she is good always, 11680-1.

Has found the Aberdon Angus the most profitable animal for general purposes, 11698-701, 11748-61.

The smallest standard measure is the half-pint; this makes the sale of halfpennyworth of milk unprofitable and restricts the sale, 11706-8.

Approves of the Dairies Order, but objects to its partial application, 11709-10.

By not applying to house butter-makers, it has restricted the sale of milk, 11712.

Difficulty of getting dairy labourers, 11712-22.

To improve milk-yielding properties of cows, would register only bulls, calves, and heifers of pedigree stock when they have proved themselves, 11723-3.

Characteristics of the old Irish cow, 11729-32.

CATTLE REACH RURAL DISTRICT.

Average cow population in registered dairies, 8877-62.

Number of registered dairies, 8983.

The Dairies Order is strictly enforced, 8983-5, 8974-81.

Improvement in dairies, since the Order came into force, but still room for improvement, 9074-82, 9080-6, 9124-7.

CATTLE.

Deterioration in quantity of stock by slaughter of calves (Belfast District), 6276-80 1137-92.

Numbers and value of cattle, springers and milchcows exported from Belfast, 1902 to 1911, 6283-94;

deduction as to effect on milk, 6288.

Slaughter of all animals at public slaughter advocated, 6290-4.

Cattle export trade, and dairy produce exports. Values compared, 5401.

Cattle exports for years 1905 to 1910; number and value, 3392.

Total number of, in the country, 1900 to 1910, 3394.

Extraordinary improvement in stock exported from Ireland to England, 5403-2.

Department's Cattle Scheme for improvement of live stock described, 3407.

Voluntary statement showing the number of premiums given each year since 1900, and breeds of cattle subselected, page 177.

Tuberculosis not common among Irish cattle, 847-8.

CATTLE FOODS. Need of securing purity of, 8626-31, 8483.

CENTRAL AUTHORITY—proposed—to supervise the working of the Dairies Order; see Dairies Order.

CERTIFICATE OF ANALYSIS of milk for prosecution purposes. Forms of, 276-61, 1127-39.

CLARK, JAMES L. (Clerk to the Antrim Rural District Council).

Milk is sent to Belfast and the creameries; there is no scarcity, 6734-43.

The Council have appointed Officers under the Dairies Order, 6745; the regulations as to ventilation, etc., are enforced, but no examination as to the health of the cows is made, 6747-52, 6758-61.

The Council object to Belfast officials interfering with the administration of the Order in the rural district, 6753-45; uniform administration of the Order would meet the case, 6761-2.

The two creameries in the district have not decreased the milk supply for household use, 6772-8.

Home butter-makers are not subject to inspection, 6764-8; and to avoid coming under the Order, farmers resort to butter-making at home, 6780-2.

Advocate small State farms to put byres in order, 6782-4.

CLUNE, PATRICK (Inspector of Live Stock under the Department of Agriculture, Dublin).

Very little change in price of cows bought for the Albert Agricultural College, Glasnevin, in last thirty years, 5444-59.

The cost of keeping has not increased, 5454-9.

Milk records kept, 5460-3, 5477-8. (See 5435 for record of milk yield.)

Improvement in quality of cows in the Dublin market, 5464-73.

Average price of good milk cow in Dublin market, 5475.

COMMISSION, MILK.

Resignation of Sir John Lestrange, 2187.

Vote of thanks to, Belfast, 2192.

COMMONAGES for grazing cows. See "Cow-pasture."

COMPENSATION FOR COWS COMPULSORILY SLAUGHTERED.

Slaughter of a cow with a tubercular udder is authorized by section 18 (1) of the Tuberculosis Prevention (I.) Act, 1904, 59, 1321.

The maximum limit of compensation payable is £10—see section 18 (3), 50-58.

No power to pay for tuberculous cows slaughtered, if not suffering from tuberculosis of the udder, 4696-4704.

In favour of paying full value of cow slaughtered, 210-9 (Cameron); 890-4 (Mason); 1286-8, 1326 (Watson), 3761-3, 3941-8 (Young); 4334-44 (Kennedy); 7092 (Jordan); 7338-22 (Gregg).

Two-thirds of the market-value of a cow compulsorily slaughtered would be sufficient, 10642-5, 11239-22; and an even inducement might be offered to the farmer to report a case voluntarily, 11548-51.

Whether a diseased animal is worth more than £10, 1400-4.

£10 compensation considered sufficient, 2012-3, 2947-9.

Full compensation would induce owners to report diseased animals, 1447, 2169-70, 7927-30, 8147-52, 10648-9.

In doubtful cases action would be accelerated, 2338.

President in the Pseudo-Tuberculosis Order, 1452-8.

Very careful consideration necessary before raising the limit, owing to varying local conditions, 8907-8910.

Full compensation should not be payable if cow is placed in unhealthy surroundings, etc., 1369.

Despite if proceeds of action belong to the owner after compensation has been paid, 1367.

As to who should pay the compensation, 2843, 3151-2.

The State should pay, 6911-7.

Suggestion that compensation be given for tuberculous cows slaughtered during first three years after promulgation of the Dairies Order: after that, provision for having possession of a recognizably tuberculous cow, 9036-41.

COMPENSATION FOR MILK destroyed under suspicion. For power to pay, 5977-8.

CONDENSED MILK.

Should be standardized, 348.

May carry disease, 338-351.

Compared with whole milk as a food, 346, 369, 4909, is not a good substitute for fresh milk, 1631, 4904.

6257-63.

Made from separated milk; of poor dietetic value, 672, 2674-6.

Different qualities; danger of use of poor qualities, 4060.

Uses, 4994-6.

Use of condensed skim milk in Belfast, 6048-55, 7042-8.

Sale of, could be driven out (Belfast) by good cheap milk, 1719-8, 1807-9.

Sale of extinguished, by adequate supply of fresh milk (Belfast), 3163.

Manufacture of, 2603-4, and footnotes, p. 81.

No power to inspect condensed milk factories by Local Government Board, 175.

Use of stale milk, 2339-43.

No supervision to ensure cleanliness of the milk condensed, 344-247, 2578-9.

CONGESTED DISTRICTS BOARD.

Out-offices to cottages on holdings provided by, invariable as dairies, 112-7.
Erection of outbuildings by, which do not comply with the requirements of the District Order, 3891, 10.

CONNOLLY, JAMES (Dairy Inspector, Newry Urban District).

Has no difficulty in enforcing the Dairies Order, 11943-50.
No prosecution for adulteration of milk for several years, 11960-2.

CONSTABULARY might act as inspectors under the Dairies Order, 3834.

CONSUMPTION See "Fabrication."

CONTAGIOUS ABORTION AMONG CATTLE.

Losses by, 793-794, 877-891.
Infection of food by, 893-896.
Precautions to prevent spread of, by premium bulls, 897-902.
Superstitious remedies for, 903-905.
Goats as a preventive, 906, 2059-624, 2116, 2132.
Decreased milk supply due to, 890-4, 3387.
Less prevalent than formerly, 3367, 3389-92.

CONTAMINATION OF MILK.

Necessity of keeping milk covered, 416-422.
Flies as a means of, 333, 416-423, 426-67, 2062, 2063-3.
Danger of manure heaps in proximity to milk stores, 250-301, 423-33, 429-77.
In transit by tins, 945-7.
Milk tainted or infected by smells, 290-301, 463-3, 467-77.

In p.v.-type dwellings, 3183-4, 6215, 6411-2, 6947-8, 9468-9.

Dried milk less subject to contamination than fresh milk in poor houses, 1631, 1649-50.

Possible by fraudulent substitution of water for milk, 984.

Farmhouses should not be used as lodgings unless in a sanitary state, 9145.

Storage of milk in farmhouses. Improving conditions, 778-80; partly due to circumstances, 781-2.

Milk sold out of kitchens (Rathmines); difficulty of getting samples, 2292.

Danger of, increased by length of time milk is kept before consumption, 444.

Scarcity of, 9865-88.

Udder troubles of cows as a danger to public health, 8860, 9047-55.

Failure to notify infectious disease in houses where milk was sold, 3552-3.

Hygienic methods in handling milk suggested by Mr. J. B. Danlop, 2092.

As a preventive of, milk-vendors should keep list of names and addresses of their customers, 1078-9.

Standard of uncontaminated milk, recommended, 6632, 6886-91, 6796-6, 8280, 9713-3, 9897-35.

The greatest bacterial content is in the first two or three quarts, 9708.

Fewer bacteria in machine, compared with hand-milked milk, 6708, 9836-42.

Danger to health of unsterilized contamination, 6796.

See also "Disease caused by infected milk."

CO-OPERATIVE MOVEMENT, agricultural. Objects of, 983, 966.

COPENHAGEN MILK SUPPLY COMPANY. See "Denmark."

COULYER, SAMUEL T., M.R.S.I. (Dairy Inspector, Bangor Urban District).

There are also skirting local bye-laws, 8265-75.

The district, 8315-23; and proper milk-shops are insisted on, 8240.

There are also skirting local bye-laws, 8265-75.

No security of milk, 8254-7.

Advocates licensing of all cow-keepers, 8258; to meet the case of vendors buying milk from persons not registered, 8329-33.

Milk-cans of suitable design should be used, 8334-5.

The right to inspect outside dairies was refused by the Local Government Board, 8342-3.

Need of such inspection, 8344-7.

Doubts if the appointment of unpaid (Constabulary) Food and Drugs Inspectors is advisable, 8349-55.

COUNTY COUNCIL as the licensing authority for dairymen, 645.

COURTNEY, WILLIAM J., J.P. (Chairman of the Meath Rural District Council, and representing the Bellewstown Branch of the Meath Labour Union).

Witnessed scarcity of milk in the district during winter, 1099-106, 10722-8, 10786-7.

Due to the operation of the Dairies Order, 10930.

14, 10129-31, 10218-20.

Tea is given to children as a substitute for milk, 10189-98.

The Order is enforced by the Rural Council, 10115-20.

Suggests that the State should provide grazing plots for respectable men who could purchase a cow, 20442-50.

Approves of the District Council making a contract with a milk producer to sell and deliver milk at fixed rates within the district, 10151-3; but doubts the willingness of the District Council to undertake this duty, 10154-5.

Labourers in the Union cottages do not get milk from their employers, 10160-3.

Difficulties of labourers co-operating to take a field and graze a cow, 10164-7, 10170-89, 10199-335.

The existing commonage is not a satisfactory grazing ground, 10174-5.

Goats: objection to keeping, by Union cottagers, 10231-3.

COW-PILOT, or common grazing plot for labourers' cows.

Power of Estates Commissioners to reserve plot for common use by labourers, 2177.

Father Barry's scheme at Glenties.

Land reserved for grazing cows, 2183-94.

Selection of persons to use the commonage, 2195-7, 2200-3, 2208-15, 2248-54.

Power to change participants, 2264, 2265.

Vested in trustees, 2198-9; difficulty of getting trustees, 2258-9, 2269-18.

Amount of rent charged, 2261-2, 2273-4.

Suggestion that a larger area be reserved and used for (a) grazing, (b) cropping, 2265-7.

Use of, confined to cows, 2236.

As to disproportionate use of plot by one individual, 2236, 2238.

Responsibility in case of failure to make up the Estates Commissioners' charge, 2238.

The scheme encourages thrift, industry, and sobriety, 2269-2.

Trustees not responsible for seeing that users of, have proper cowsheds, 2139-40.

Criticism of the cow-plot scheme as a means of supplying milk, 2444-7.

Scheme adopted in Killybeggs, 4146-8; this scheme would be suitable for tenants of Union cottages, 4184-97.

COWS.

Census of, from 1900 to 1911. Footnote, p. 87.

Tables showing number of milk cows in each County in Ireland in 1902 to 1911, 5221-3.

Number of milk cows in Ireland for each year since 1854, 5202.

Influence of feeding on milk production, 245-5, 258-9, 1025-32, 5153-5, 9555-61, 10717-23.

On quantity, 3839.

On quality, 8474-7, 9321, 9505-8, 10718.

The richness of the milk is a constitutional question with the cow, 5156, 10412-21.

A constitutionally bad milk cannot be improved by feeding, 5163-5.

A large milk yield from a cow is not necessarily of poor quality, nor a small yield, rich milk, 5156-7.

Determination of cows in creamery districts in the South, 4233-33.

Attributable to (1) tubercular separated milk returned by the creameries, 4238-43, 5214-21, 4339-44.

(2) improper accommodation for cattle by day and night, 4308-6.

(3) breeding from inferior bulls, 4307-61.

(4) contagious abortion and white scour, 4306-4302.

Difficulty of getting good milk cows, Dublin, 1390.

No data for milk yield of, 3280-5.

COWS—continued.

- Milk of, less than 25 years ago, 7401-4, 7425-7, 8416-9, 8502-9, 8630-2, 10422, 10989-90, 11013-4.
- In spite of higher quality of feeding, 8433-7.
- Due to the introduction of non-milking premium Shorthorn bulls, 8397-90, 8430-1, 8439-52, 8483, 8111-4, 9333-84, 8664-85, 10423-4, 10430-1, 11045-58.
- And the encouragement of beef at the expense of milk, 7403-8, 8471, 8488, 10320-1, 10901, 11036.
- Due to breeding from premium bulls which are housed too much to have healthy offspring, 11015-29.
- Feared feeding, a possible cause, 8661.
- Other causes of deterioration.
- Custom of dairymen milking of the milch-cow at the end of the milking season, 8404-9, 10492.
- Import of the best dairy cows to Great Britain, 9608, 10602, 11485-73, 11733-9, 11856-69, 11884-7.
- There are fewer good cows in the country than formerly, 10998-9, 10973-84.
- Proposal to get back to the old milking system, 8422-32.
- Double as to the possibility of raising the milking qualities of Shorthorns, 8608.
- To improve milk-yielding properties of cows, proposed registration of bulls, cows and heifers of pedigree stock only when they have proved themselves, 11725-6.
- Milking qualities of Irish cows. Department's scheme for improving. See "Dairy Cattle Registration Scheme."
- Distinction drawn between the Irish and the fatty Shorthorn, the former is a satisfactory milk producer, but not the latter, 11033-5.
- Red Lancashire. Good milking progeny of a Red Lincoln bull, 4527, 4577-9.
- As milkers, are not better than Shorthorns, and are drier, 5405-14.
- Red Lancashire and Shorthorns are not good from the milking point of view, 10605-6.
- Nervy cows are not a good dairy breed, 3207-11.
- Dresses are better, but difficult to breed, 3511-7.
- To produce a good dairy cow it is necessary to make a good milch cow with a bull of good milking strain, 9083.
- Description of the old Irish cow, 10901, 11725-29.
- Determination of the dairy cow since the extinction of the old Irish cow, 11647-56.
- Absentee slaughter of cows in Belfast, 7126-9.
- Cows milked for one season and then sent to the butcher, 8367-9, 8497-9.
- To prevent slaughter of good milch cows
- (a) The Department's position for bulls should be given to cows instead, 5708-11.
 - (b) Dairymen should be induced to breed from the best of their cows, 8488-90.
 - (c) Farmers should be induced or compelled to breed from a portion of their herds, a suitable bull being provided, 8608-22. The farmer needs aid to tide him over the time while the cows are not in milk, 8650, 8623-5.
- Suggestion as to breeding a utility cow, i.e., for milk and beef, 8632-5, 9523-3, 11801-704.
- Results of Jersey and Ayrshire crosses for milk and beef, 12656-72.
- The Aberdeen Angus found to be the most profitable animal for general purposes, 11089-701, 11749-52.
- A good cow once is not always a good cow, 11080-1.
- Price of milch cows increasing, 3107-8, 7995-6, 10021-5, 10529-40, 10908-9.
- Average price of good milch cow in Dublin market, 8476.
- Improvement in quality of, in Dublin market, 5464-73.
- Cows on grass in summer, sent from Dublin and district, are not under supervision, 715, 1387-82, 1430-1, 1586-8, 2821-4, 3249-53, 3723-7, 4649-52, 4742-52, 5294, 6040-62; Belfast, 8427-9.
- Importance of water supply for, when on grass, 3662, 3821-4, 2905-6.
- Removal of, outside city—Objections to, 1874-8, 2455-74.
- Cows milked at markets and fairs; no supervision, 4286-9, 5809-10, 7214-22, 9779-89, 10674-9.
- Overstocking of, at fairs. Credit to animals, and dirty vessels used for milk, 4220-47.
- Lease for purchase of, 2291-4, 8686.

COWS—continued.

- Leasing of, 4401-9.
- Trade in cows in poor condition, probably for sausage meat, 4284-8.
- Infectivity of, by human tubercle bacilli, 519-26.
- Estimated number of, with tubercular odors, 993.
- Comparative freedom of Irish cows from tuberculous of the udder, 1422-28, 1490.
- Also see "Tuberculosis."
- Housing of, under bad conditions, 747, 2042-3; a cause of disease among cows, 757-62.
- Prevalence of tuberculosis amongst cows and heifers, 1908 to 1941 (Belfast district), 7171-7.
- "Coosal" cows. Instances of, which though apparently healthy, give milk highly charged with coost, 9713-4.
- Disposal of weaning cows in America, 9785-7.
- Introduction of Irish cows into a dairy yard should be notified to the local authority, 2366.
- Deceased cows, suspected, in Dublin, are kept under observation and milk destroyed, 1245.
- Disposal of, 1246-51.
- See also "Dangers of Cows."
- COWBREDERS.
- Board of Works do not stock plans for, 1075-92.
- Lease made by Board of Works for building or improving, 1726-7, 1776-80.
- Requirements of the Dairies Order must be complied with, as a condition of issue of Board of Works' loan, 1720-40, e.g., as to water supply, 1764-5, 1931-2; fencing, 1766-9, 1854-60; drainage and manure pits, 1773-5, 1810-9, 1923; air space, 1861-72.
- Minimum loan granted to tenants is £25, to owners £50, 1750.
- Small loans should be made to put byres in order, 8223-4, 8135-51, 8230-5, 8708-9, 3549-52.
- COW-TESTING ASSOCIATIONS.
- Proposed establishment of, 1093-4.
- Encouraged by Department of Agriculture, 5691-5692, 11558-9.
- Associations working under the Department, 2997-9.
- Proposed formation of, under the New Agricultural Show Society, 11483-8, 11600-72; the association to affiliate with the Society, 11573-84; the Society will be responsible to the Department, 11573-8.
- See also "Milk Records."
- CREAM Should come under the provisions of the Dairies Order, 9304-7.
- CREAMERIES.
- Inspection and Supervision.
- Persons supplying milk to creameries must be registered under the Dairies Order of 1908, 20.
- Creameries which sell milk must be registered, 336, 3446; not otherwise, 139, 2490.
- Are registered under the Factories Act, 2407-8.
- Dairy milk supplied to, 770, 2397-401, 3434; conditions improving, 1902-1, 1944-5.
- Will be checked by Butler Bill, 3226-30.
- Efforts made to eliminate dairy milk, 2563.
- Steps taken by creamery managers to ensure the delivery of clean milk, 2286.
- Difficulties in the way of managers reporting dairy milk, 3387, 2397-403, 3235-6.
- Assistance given by the Department of Agriculture in this matter, 2286.
- All milk suppliers to creameries in County Antrim are not registered, 39896-8; and the creameries do not assist the authorities, 39889-91.
- Milk sent to creameries in a district in which the Dairies Order re Veterinary inspection of cows is not enforced, 8747-52, 8758-61, 8809-22.
- Capable of disseminating infectious diseases, 68, 142-148, 463, 2425.
- Gatherers of exotic fever traced to milk from creameries, 226.
- Local Government Board have no control over, 146; not have Department of Agriculture, 2399-56.
- Department has no power to interfere with hygienic conditions of, 3369-96, 3481-6.
- Rheumatism inspection of, necessary, 787-791, 3486.
- Licensing of, 2460-75.

CREAMERIES—continued.

Management.

Department's inspectors visit, under a voluntary scheme, 2460.

Number of creameries visited, 2434-7; reports made and inducements offered for good management, 2467-68.

Proposed uniform code of rules for managers to ensure hygienic conditions, 2447.

Good creamery management means increased milk yield, 218-220, 737, 739, 792.

Treatment of milk after reception at, 2415-7.

Facilities for cleansing suppliers' vessels at, 1090, 2406-8, 2460-3.

Shed or store, disposal of, 2459-61.

Open during winter generally, 2409-11; e.g.,

Killbuckhanda and 14 auxiliaries, 2493-96.

Creameries do not open on Sundays in the North, 2429, 2498-91; they do in the South, 2426.

Improving conditions for storage of milk in farm-houses partly due to, 774-82.

Value of milk increased by, 976.

Creameries in relation to the domestic milk supply.

Price paid for milk by creameries, 729, 738, 10710-6.

Milk supply to, increasing, 2408.

Distributed milk supply to, in certain areas, 2081-3.

Average percentage output of milk per month of typical creameries, 1906 to 1908, 5287.

Creameries as a cause of scarcity of milk for domestic use:

Affirmative, 1286.

Negative, 724-30, 907, 977a, 2474-45, 11070, 11141, 11617.

Cases where there is no scarcity and there are creameries, 8772-3, 10739-38.

Cases where there are no creameries and there is scarcity, 907, 2205.

Milk sold retail by, 909, 2412-4.

Creameries do not sell new milk (Killbuckhanda); the farmers object, 4487-4503, 4526-43.

Reasons why creameries do not order for town milk supply, 2593-4.

Are not milk shops, 2426.

Sale of separated milk by, 5335-46, 10704-9, 10731-9.

Retail sale of milk by, is more profitable than butter-making, 974-6.

Rules of Co-operative Societies do not forbid sale of milk for domestic use, 969-72, 2486; nor home butter-making, 2447-8.

Creameries willing to sell milk; no objection to its being made obligatory, 10733-9, 10781-8.

Proposed means of supplying milk to households in creamery districts, 1018-6, 1049-52, 1057-9.

General.

Geographical distribution of, 2678.

Loans made by Board of Works for buildings, 2741-8.

Plans of, and advice given by Department re buildings, 2688-73.

Number of, pasteurising milk, 2421-4, 2449-53.

Separated milk sent out by, should be pasteurised, 484, 2433.

Gow's milk not suitable for creamery purposes, 1969, 1995, 2022.

Contr., 2525-7.

Elimination of tubercular cows by means of, 2575-8.

Deterioration of cows in creamery districts in the South, 4368-69.

Attributable to

(1) Tubercular separated milk returned by the creameries, 4289-95, 4314-21, 4388-84.

(2) Improper accommodation for cattle by day and night, 4305-6.

(3) Breeding from inferior bulls, 4337-41.

(4) Contagious abortion and white scour, 4399-4402.

Cow-testing Association to be formed by Newry Agricultural Show Society; that creameries affiliate with, 11579-84.

CRESSWELL, W. R. (Cowkeeper and breeder, and milk vendor, Belfast).

Believes in the utility of keeping milk records, 9180-86.

There is trouble rather than expense involved, 9218-23.

Seeds for milk from Jersey and Ayrshire bulls; good demand for the calves, 9167-97, 9208-17, 9246.

Instance of pure milk which was below the legal standard for butter fat, 9198-9207.

CRESSWELL, W. R.—continued.

All premium bulls should be bred from cows with a record for milk yield of not less than 700 gallons, 9214-20.

The Dairies Order should be enforced equally in town and rural districts, to prevent unfair competition, 9221-4.

Value of milk as a food not sufficiently appreciated in Belfast, 9225-33.

Milk for infants, 9234-8.

Price of milk, 9239-41; the milk as of uniform quality in the different districts, 9242-5.

The paying price of milk depends on circumstances, 9250-8.

The Dairies Order is helpful in ensuring the production of clean milk, 9253-4.

Influence of feeding on the milk yield of cows, 9255-59, 9260-1, 9261-70.

Cows milked at farm into dairy vessels, 9279-81.

Kerry cows are not a good dairy breed, 9289-11; Dexters are better, but difficult to breed, 9311-7.

Milkmen running short of milk can go to the wholesale store; need not buy in the street, 9326-32, 9392-4.

People too poor to buy milk might be aided by a voluntary society arranging with a dairyman to supply certain streets, 9393-41.

Winter dairying should be encouraged; prevent loss to the country, 9347-9, 9356-7.

The State should advance small loans, less than the Board of Works maximum of £25, 9349-54.

Shearing of milk. A filter with the medium of cotton wool is the only effective one, 9322-8.

CRONIN, J. J. (Milk purveyor, Dublin).

Faulty system of breeding stock by farmers, 4820.

In favour of licensing dairymen and milk purveyors, 4840.

CRONIN, WILLIAM (Town Clerk, Newry).

There is a Veterinary and Dairy Inspector to carry out the Dairies Order in Newry, 11278-81; enforcement of the Order, 11281-3, 11298-300, 11399-99.

A few persons gave up the milk trade in consequence of the Order, but the milk supply was not materially affected, 11386-88.

Newry Urban Council sought power to send their inspector into a Rural District which had not appointed an inspector, 11301-3.

Outbreak of typhoid; milk supply suspected, but not proved to be the cause, 11305-11.

The poor have great difficulty in getting milk, 11318.

There is great need for a milk depot, 11319, 11325-6; private enterprise in starting it is preferable to public management, 11346-7; but selling all else it is the duty of the local authority to open a depot, 11348.

The expenditure of public funds on such a project is justifiable, 11349-1, 11357.

Prosecution for adulteration of buttermilk, 11329-36.

CULLINAN, MRS. M. J. (Tram, Co. Meath).

Society of milk in Co. Meath; causes—difficulty of getting grazing, sale of best cows, rearing of calves, and fear of the Dairies Order, 4183-45, 4188-79.

Rural district council depete; not in favour of, 4140-54.

Need of inspection of all milk cows, 4145-7.

Efficient administration of Dairies Order not secured by a locally appointed inspector, 4180-3.

Compensation or "cow-plot" scheme adopted in Kells, 4146-8, this scheme would be suitable for towns of Union cottages, 4194-97.

In favour of goat-keeping, 4199-4239, 4248-61.

Overstocked cows in the fens; objectionable, because of cruddy, and dirty milk vessels used, 4239-47.

D.

DAGG, J. RALPH, Dp. Es., T.C.D. (Clerk of the Ballinglass No. 1 Rural District Council).

Enforcement of the Dairies Order in the district, 5651-3, 5642-4, 5713-17.

Scarcity of milk supply in Ballinglass and district, 5650-41, 5660-8, 5692.

The Order should be made applicable indiscriminately to all milk producers, 5643-51.

Failure to notify infectious disease in houses where milk was sold, 5622-8.

DAGO, J. EALPH—continued.

- To remedy the deficiency in towns suggests co-operative milk depots, aided by Government loan, 5009-50, 5055, 5738-43, 5772-50.
- Objections to a dairy run by the local authority, 5671.
- The labourer's independence of the farmer has increased his difficulty in obtaining milk, 5687-8.
- To remedy difficulty in rural districts suggests better roads, 5699, 5708.
- Proposed combination of farmers to provide butter-milk; County Council to lead for modern skimming utensils, 5691-4.
- Objection to rate or State aid in providing milk for sections of the community, 5688-9, 5693-5706.
- Suggests that the Department's premium should be given to cows, not bulls, 5708; to prevent slaughter of good milk cows, 5709-11.
- Resolution of Limerick County Committee for subsidy for winter milk, 5711.
- Reduced number of cows in districts due to decreased area under tillage, 5747-58.
- Does not object to the local officers of the contractor's area inspecting the cattle and byres of the producer's area, 5761-71.
- No supervising over cows milked at home, 5807-16.
- Approves of licensing dairykeepers, and of central control, 5817-22.

DAIRIES.

- Improvement in condition of, Dublin, 158.
- Prepared concentration of trade in few hands, 287.
- Separation of dairy shop from dwelling house desirable, 2756-9, 2995-9, 2996, 3005, 3073-6.
- Removal of, outside towns desirable, 2778-80, 2935.
- Centre, 3070.
- Closed by enforcement of Bathmans Township By-laws, have been replaced by others, 2982.
- Rural dairies. Why not up to the city standard (Belfast), 2988.

DAIRIES, COWSHEDS, AND MILKSHOPS ORDER, 1908.

- General Consolidating Order issued in 1908, 4.
- The Order as imperative, 7; desirability of having it imperative, 24-25.
- The Model Regulations issued previously to 1908 were defective, 4.
- The Order applies to all Urban and Rural District Councils, 7.
- Imposes two specific duties—registration, and appointment of officers, 7.
- Superintended in 1909 by a General Order (permissive) re the appointment of officers, 7.
- Mandatory Orders issued to individual Councils to appoint a veterinary inspector, 7.
- Refusal of Kilmallock Rural Council to comply, 6-8.
- Council overruled by the Court of Appeal, 23-26.
- Power of Local Government Board to issue Mandatory Orders, 7-8, 33.

Veterinary Inspector.

- Need not necessarily be a veterinary surgeon, 69.
- Qualifications of his inspectors, 181-126, 1180-6.
- Is required to report to the Department of Agriculture cases of tuberculous cows, 69.
- Duties of, 692.
- Proposed appointment of whole time, for one or two counties, 30219-22.
- Proposed appointment of, by County Council, and paid by the local councils combined and the State, 5881-4.
- Preference for the professional to the lay inspector, 5894, 1187-91.
- Dairy Inspector, duties of, 602; not required to hold sanitary certificate, 602-3; qualifications desirable, 6228-9, 7076-8, 8807, 9015-8.
- An unqualified man may make an efficient dairy inspector, 6116-8.
- Inspectors should have power to prosecute, without reference to the sanitary authority, 1064-61.
- The Sanitary Authority might act as inspectors under the Order, 5824.
- Reports of officers under the Order are not furnished to the Medical Officer of Health, 908.

DAIRIES, COWSHEDS, AND MILKSHOPS ORDER, 1908—continued.

- Enforcement of Order by local authorities generally prescribed, 5, 28-31.
- In Dublin, 199; S. Dublin R. D., 4383-99; N. Dublin R. D., 3992-4007; Baldoonagh Union, 758, 806, 808-16; Bathmans U. D., 2993, 2708-12.
- Bellingham and district, 5631-8, 5642-4, 5718-37.
- Newtowns R. D. 3331-7; Lurgan U. D., Lurgan R. D., and Moira R. D., 7912-3, 7923-6.
- Meath R. D., 10115-20; Newry No. 2 R. D., 13470-12, 10467-502, 11443-9, 11285-601; Newry U. D., 11578-83, 11298-300, 11249-50; County Armagh, 11054-61, 11120-6, 10984-91.
- Also see "Antrim R. D.," "Belfast R. D.," "Castlereagh R. D.," "Larne U. D."
- Improvements effected in consequence of the Order, 27. In Dublin and district, 193, 1972, 4693; in Belfast and district, 7120, 7350, 7517.
- Statutory powers for inspection of cowsheds, etc., sufficient, 29-30.
- Necessity for regulations re air-space, light, and ventilation, 147-38.
- Regulations re air-space criticised, 980.
- Milkshops, powers of inspection of, sufficient, 1338-43.
- Improvement in cleanliness production of milk in consequence of the Order, 5160-6, 9233-4.
- No objection to the Order, 2245-8, 10286-6, 10671-2, 11712, 11922-3.
- The Order is good for the dairy trade, 7417-21, 7623-4, 8128, 10411, 11715-6.
- Urban authorities were inclined to prosecute for breaches of the Order than rural authorities, 7918-9.
- More supervision is required in rural districts to ensure compliance with the Order, 7667-69, 8008-9.
- Constant supervision necessary to keep up the standard of cleanliness, 6558-75, 8508, 9592, 10399.
- In administering the Order instruction as well as directions should be given to farmers, 9203-4.
- Need of consolidating orders re sale of milk, 714.
- Out-buildings erected by the Congested Districts Board, which do not comply with the Order, 5601-10.
- Detriment effect of increasing the poor law valuation on erections, etc., of new byres, etc., 5823, 9169-9.
- Loans. Are made by Board of Works for erection and improvement of cowsheds, 1725-7, 1756-80.
- Increased number of applications for, for cowsheds since issue of the Order, 1728-36, 1791-4.
- Requirements of the Order must be complied with as a condition of issue of Board of Works loan, 1733-40, e.g. as to water supply, 2784-5, 1921-2; flooring, 1766-8, 1854-60; drainage and manure pits, 1770-5, 1810-9, 1923; air-space, 1864-72.
- Objections of borrowers to provisions of the Order, 1781-90, 1795-1800.
- The Order does not operate against applications for loans, 1927-9.
- Minimum loans granted to tenants at 25s. to owners 45s. 1780.
- Small loans should be made to put byres in order, 8123-4, 8155-61, 8290-8, 8782-4, 9040-51.
- Provision of proper means of storing milk suggested as a condition of making loan for cowshed, 1805-43, 2872-5, 1928-4, 2001-5.
- Application of the Order.
- Order only applies to vendors of whole milk, 141.
- Persons supplying milk to creameries, 20; and creameries selling milk, must be registered, 138.
- Enforcement of registration of milk vendors, 71-93, 1197.
- Farmers are not allowed to sell milk to their labourers unless registered, 8223-6.
- Centre, 10670-3.
- Position of farmer selling milk to his labourers, 21-3, 49-46, 118-20, 156-0.
- In England the farmer is allowed to sell to his labourers, 3448-48.
- One or two cow men who sell to their neighbours are required to be registered, 11132-3.
- Effect of Order in restricting milk supply.
- Reports of Local Government Board Inspectors, 28-40.
- General evidence that sale of milk is restricted in consequence of the Order, 166, 877-9, 1012, 1295-8, 1378.

DAIRIES, COWSHEDS, AND MILKSHOPS ORDER, 1909—continued.

In specified places: Borth, 667; Oldcastle, 2340-30, 2135; Athenry and Tullamore, 8499-31; County Limerick and Kerry, 3073-91; County Meath, 4139, 4277-9, 5040-14, 30139-41, 30218-20, County Kildare, 4327-31, 4860-72, 4961; North Dublin Rural District, 6013-4; Newtownards Rural District, 8111-9, 8126-9; Newry, 10239-54; County Antrim, 10502.

Because the tenure of the premises does not warrant expenditure, 10194-9, 10231.

Because it does not apply to home butter makers, 11713.

County, 3167-8, 4344, 4355-7.

A few small men have been put out of business, but this has not materially affected the milk supply, 7463-5, 11286-90, 11453.

Registration of milk vendors, etc., is at present compulsory on the local authority, irrespective of the suitability of the premises, 6448-53, 8973-4.

Recommendations that housing be substituted for registration. See "Licencing."

Proposed amendments of the Order.

The definition of milk should include separated, skim, and buttermilk, 341, 176-7, 346.

The Order should apply to the by-products of milk, e.g. separated, skim, and buttermilk (also butter and cheese), 2471-3, 6465-6, 7056, 7513, 7529, 7680, 8587, 8628, 10334, 10628, 11277, 11375, 11089, 11994, 11754.

Special reference to registration of vendors of buttermilk, 2471-3, 5965-6, 6761, 8862-3, 9004-7; and of cream, 1504-7.

Butter makers at home do not come under the Order, 993-90, 3478, 6766-8.

And milk producers, to avoid coming under the Order, except to home butter making, 6780-2, 10730, 11454-7, 11718.

Proposal to bring home butter makers under the Order, 940, 946, 6329, 10181-5, 10993-6, 11708-10.

Reason why the home butter maker is not brought under the Order, 64-5.

The Order should apply indiscriminately to all milk producers, 5645-51, 6120-2, 8174-99, 8229-32.

The Order should apply to all cowkeepers (to eliminate cows with tuberculous udders), 6283, 2366-8, 10729-30, 10829, 11718.

County, 6801-2.

Difficulty of applying the Order to every cow-keeper, 123-6.

The Order should apply to restaurants selling milk, 3190-8, 3204-8.

The exclusion of the Medical Officer of Health in administration of the Order is undesirable, 9973-4, 8687-91, 8104-6, 8975-80.

Amendments recommended re flooring, 8500-99; cleansing milk vessels, 3070-3; storage of milk, 3073-6; conditions as to resource traps, 3079-85.

Regulations re dairy yards are required, 3084-5, 1214-9.

Pigs should be excluded from dairy yards, 3097-3105.

Art. 15—amendment suggested, 6429.

Art. 6—leaves too wide a loophole, 9453.

Objections to concrete floors for byres, 8465-9, 8491-8501.

Concrete floors approved, 8664-7.

The Order should be made clearer on certain points, 1006, 1020-34.

Individual definitions of "dairy," 1948-53 (Borth); "dairy yard," 1923-8 (Borth), 8101-3 (Walsby).

Administration of the Order. See also "Inspection."

Administration of the Order must be left to local authorities, subject to central control, 66-91.

No guarantee of uniform administration, 104-8.

Even milk supply dependent on local authorities' administration, 135.

To ensure uniformity of inspection, reports should be made on printed forms, 455-10.

There is no uniform code of rules among veterinary inspectors as to administering the Order, 11713-26, 11335-8; and it might be hard to ensure uniformity, 11118-21.

No supervision of cattle sent to grass in summer from Dublin and district, 715, 1287-92, 1370-1, 1506-8, 1623-4, 3249-38, 3723-7, 4648-53, 4748-52, 5294, 6040-62; Belfast, 6697-9.

Milkers of cows out on summer grass, conditions under which they work, 723-4, 1377-8, 3223-32, 4660-7, 4827-30.

Partial enforcement of Order in different localities, 978, 981-5, 6732, 8600-22, 1069-24.

No inspectors appointed for certain districts, 73, 11647-53.

Uniform administration everywhere necessary to prevent unfair competition, 3173-7, 3180-6, 3630-40, 7117-9, 7613-7, 7847, 7943-5, 9231-4.

Efficient administration not secured by a locally appointed inspector, 4186-3.

Absence of effective administration, notwithstanding appointment of officers: N. Dublin District, 604-617, 625-661, 681, 694-698, Co. Caron, 4544-6; Ber., 5172, 5188-90, Antrim B. D., 8743-7, 8158-61, 8806-28.

Supervision by central authority required, 608, 660, 694-697, 709-714, 7794-8, 3173, 3471-32, 10509, 10506-10, 8128, 7006-8, 5855-7, 4113-5, 6848-50, 6538-44, 6821-4, 7391-7399, 7542-3.

The Order should be worked by officers responsible to a central authority to ensure independent inspection, 864-876, 7541-3, 3493-3600, 4180-3, 6131, 7165-73, 7680-1, 8043-45, 8042-5, 8083-8, 11007-11.

Leading duties of the central authority in administering the Order suggested, 8945.

DAIRY CATTLE REGISTRATION SCHEME

(Department's), for improving milking qualities of Irish cows, described, 5479-80, 5443-8.

Keeping milk records valuable as a means of eliminating bad milkers from a herd, 3481.

Also, tests should be made to ascertain percentage of butter fat, 5485-90.

Influence of the bull in breeding milk-producing cows, 5491.

Difficulty of procuring bulls bred on milk pedigree farms, 5491.

Value of export cattle trade compared with export of dairy produce, 5491.

DAIRY FARMING is less profitable now than formerly, 3407-39, 7460-2, 10380-2.

DAIRY INSPECTOR, duties of, 902. See also "Dairy Order."

DAIRY LECTURES. That they be given by Department in urban districts, 5178-81.

DAIRYMEN should be required to keep list of customers, and of supplies, 3066-9, 6722-3.

As to keeping list of employees' addresses, 3339-42, 3191-9, 6726-7.

Inducement to permanent dairymen by the "cuckoo" milkmen, 6464.

Notification of disease among their employees and cattle should be compulsory on certain specified persons, e.g. M.O.H. and veterinary inspector, notification fee to be paid to the dairymen, 8945-9.

DAIRY PRODUCE. Value of exports compared with that of the export cattle trade, 5491.

DAIRY TRADE.

Adversely affected by the cattle trade, 826, 3196, 7405-8.

Bad encouraged at the expense of milk, 7320-13, 7403-8, 8471, 8680, 10550-1, 10902.

More valuable than rising stores, 835-6.

Risks of carrying on, 3935, 5843, 5863-5.

Ensuring safety of the work, 10458-7.

Scarcity of efficient labour in connection with dairy business, 821-3, 8093-4, 4629-32, 8447-50, 11713-22.

Wages paid, 8438-52.

Witness who gave up dairymen because of difficulty of getting labour (Pogonipens), 10973-6.

DAIRY TRADE—continued.

- No difficulty in getting dairy workers (Belmont), 1905-16; (Newtownards), 1902-4.
Centre, 1911-5, 1940-2; (Newry and district), 1948-50.
Scarcity of dairy labour due to low wages, 1906-7; the Labourers' Act, 1906-10; and the Workmen's Compensation Act, 1917-20.
Suggestion that the Government send boys to farms instead of to industrial schools, 1947, 1948-5.

DAIRY TRADE, DUBLIN.

- Differences between trade to-day and thirty years ago.
Better prices, cheaper cattle, labour, and tallow; better price for milk, 1919-30, 1943.
Cost of grazing increased, 1933-5.
Price of fat-tended cow less, 1938-9.
Lack of adequate compensation has reduced number of cowkeepers, 1940, 1945-8.
The Dairies Order not responsible for driving men out of the trade, 1917-6, 1936-8.
The Order should be uniformly enforced everywhere to prevent unfair competition, 1919-7, 1939-5.
Increased cost of cowkeeping in recent years, 1931-69, 1938-50.
See also "Hatch, Joseph," and "Young, John."
Lack of public encouragement of tuberculin-tested herds, 1919-60, 1920.
Cheap price of milk as the consumer's chief consideration, 1939, 1940-4.
Small men with families more suitable than societies for dairy trade, 1900-1, 1910-14, 1938-53.
As to carrying pig-feed in empty milk vessels, 1937-6; (Belmont and district, 1938-8.)
Difficulty of carrying on dairy trade in Dublin, 1926-8, 1939-43.

DAIRY WORKERS. Should be specially educated as to the preventability of tuberculosis, 1914.

DAIRYING, WINNERS. See "Winter Dairying."

DENMARK.

- Operations of the Copenhagen Milk Supply Company.
Growth, 1900.
Rules for supplying milk to Company—dealing with feeding, culling, and housing of cattle, treatment of milk, health of employees, etc., 1900.
Frequent veterinary inspection by Company's surgeons, 1900.
Milk kept constantly at low temperature, 1901.
Pasteurisation not approved, 1902.
Bottled milk, 1900; delivered, 1906.
Cleaning of milk vessels, 1904.
Infants' milk, preparation, 1906; and delivery, 1906.
The Dansk milking pail for reducing temperature of milk, merits of, 1905.
Prices of Company's milk, 1909; price paid to producer, 1900.
Growing public demand for good milk, 1901.
Company not subsidised, and dividend limited to five per cent., 1902-4; bears certain expenses of production, 1909-12; and has its own ice-making plant, 1916-30.
Improvement in dairy herds by breeding from bulls of good milking strain, 1904.
Tuberculin test; sent by Danish Government for application of, 1903-8.

DEPARTMENT OF AGRICULTURE, IRELAND

Re Creameries.

- Efforts to abolish dirty milk, 1938.
Has no legal control over creameries, 1939-46, 1946, 1948-5.
Is concerned with the commercial, not the public health, side of creameries, 1939-1940, 1943.
Insider's to creameries to be visited by Department's inspectors, 1937-9.
Plans of creameries supplied and advice given re buildings, 1938-73.

Re Dairies Order.

- Proposed supervision by, of all places where live stock is kept, 1919-21.
Supervising cowbills and cattle under Dairies Order, by Department's officers, 1947-50.
Should be the licensing authority for dairymen, 1945.

Re Cattle Diseases.

- Experiments undertaken to check contagious abortion, 1907.
Tuberculin in cattle; conditions on which the Department is prepared to help farmers stamp out, 1904.
Encouragement of tuberculin-tested herds by, 1903.

Re Cattle Breeding.

- Improvement effected by Department in live stock exported to England, 1941-2.
Department's cattle scheme for the improvement of live stock described, 1907.
Tabular statement showing number of premium prizes each year since 1900, and breeds of cattle subsidised, p. 177.
Losses made by, to small farmers to purchase premium bulls, 1916.
Inspectors are willing to advise farmers what bull to buy, 1923.
Complaints that the use of premium bulls of non-milking strain has caused a shortage of milk producers, 1907-96, 1917-6, 1935-7, 1935-4, 1940-8, 1943-1, 1946-96, 1948-1903, 1941, 1911-4, 1923, 1938-56, 1941-45, 1943-4, 1943-1.
Centre, 1939-40, 1933, 1916-19, 1938-7.
Reply to allegation that Department's premium bulls are responsible for a decrease in the milk supply, 1923-43.
Sale of Galloway bulls by Department, 1945.

Re Milk Production.

- Encouragement of production of winter milk, 1939-61.
Dairy cattle registration scheme for improving milking qualities of Irish cows, see "Dairy Cattle Registration Scheme."
Cow-testing associations encouraged by Department, 1901-1902, 1932-9.
The season of calving as an influence on the yield of milk, Department's experiments, 1903-6.
Improvement of goats; Department's proposed scheme for, 1924-6.
Proposed use of Departmental funds to purchase milk cows for labourers, 1918-1903.
Complaints that Department's premium bulls are responsible for the deterioration of the milk yielding properties of cows—see above.
What has been done in Denmark, 1944.
Premium bulls should have a milk strain, 1943-5, 1944-7, 1945-8.
The Department should breed bulls of milking strain to mate with farmers' good milking cows, 1903-5.
The Department are not doing anything to induce farmers to breed a milking strain, 1901-29.
The Department should offer premiums and prizes for bulls of a milking strain, 1946-53.
The Department should insist on Ulster County Committees buying more bulls of milking strain, 1902-9.
The premiums for registered dairy bulls should be increased, 1933-61, 1933-43.
That Department's premium be given to cows, not bulls, to prevent slaughter of good milk cows, 1908-11.
To check slaughter of milk cows at end of milking season, Department should offer inducements to dairymen to keep their best cows, 1940.
See also "Bulls."

Swedes.

- Better milking instruction scheme described, 1931.
Suggestion that Department test Mr. Pells' process for preserving milk, 1908, 1900.
Dairy lectures, that be given by the Department in urban districts, 1919-27.

DIARRHŒA.

- Summer diarrhea caused by flies infesting milk, 1938; by dirty milk, 1906-10.
Infantile diarrhea caused by infected milk, 194, 198, 1904; by pasteurised milk, 190.

DIETARY of the people changed.

- Porridge and milk are preferable to bread and tea, 1908, 1916-65.

DIPHTHERIA.

Caused by infected milk, 8870-81; doubtful, 376-7, 485-6, 785.
 Evidence of diphtheria carriers, 1165, 6096, 6028-33;
 test for detection of, 6007-8, 6750-7.

DISEASE.

Immunitation against, how caused, 6894.
 Failure to notify infectious disease in houses where
 milk was sold, 5633-8.
 Suspected in milk vendor's house, power to inspect,
 6175-7.
 Existing legislation to prevent spread of, by
 "cans" needs modernising, 6296-300.
 Infectious; provisions in Public Health Act, 1907, re
 notification of, 6398.
 Among dairymen's family, employees, or cattle; pro-
 posed compulsory notification of by certain persons,
 notification fee to be paid to dairymen, 5948-9.
 Infective malodour caused by unclean or impure
 milk, 4980-3, 5077-80.

DISEASES OF COWS.

List of, 786.
 Contagious abortion—see "Contagious."
 White scum—see W.
 Tuberculosis not common among Irish dairy cattle,
 847-849.
 Mastitis and tubercular mastitis; difficulty of dis-
 tinguishing between, 1241-4.
 Abscesses or milk boils on the udder, how spread,
 1235-7.
 Udder troubles are a serious danger to public health,
 8665, 8647-51.
 Unhygienic surroundings a cause of disease, 747,
 761-762, 1062-3.
 Thrift lambers disease from stock, 743, 829-833,
 838-846.

DISEASES PREVENTION ACT, 1903: INFECTIOUS

Insufficient powers conferred on medical officers of
 health re infectious diseases in relation to milk,
 6325-7, 6302.

**DISEASE, OUTBREAKS OF, CAUSED BY INFEC-
TED MILK.**

Infectious diseases which may be caused by infected
 milk—

Typhoid, 374, 378.
 Tuberculosis, 374.
 Infantile diarrhoea, 374, 488.

Diseases about which doubt exists—

Diphtheria, 376-377, 488-496.
 Scarletina, 497.

Outbreaks of disease caused by—

Milk 226-229, 13062-6.
 Separated milk, 142-145, 468.
 Dirty milk, 236.

Outbreaks at—

Clontarf, 354, 480-482, 620, 638-638
 Kilworth, 380.
 Glanevin, 680-683.
 Fouth, 630, 639.
 Belfast, 6083, 6293-6302, 6496-6504.
 Castleknock Rural District, 5088.

Outbreak of diphtheria attributed to milk supply,
 Belfast, 6736.

Outbreak traced to typhoid carrier, 7006-8, 8657-80.

Outbreak of typhoid fever in Newry in 1911; milk
 supply suspected as the cause, but case not proved,
 1175-92, 13306-11.

Other causes than milk suggested as the cause of
 infectious disease, when milk is blamed, 9468-9.

Communities capable of disseminating infectious dis-
 eases, 34, 142-4, 468, 2418.

Outbreaks of various forms traced to milk from
 creameries, 298.

DRIED MILK.

Use of, 387, 338.
 Is the best substitute for fresh milk: least liable to
 contamination, 1031-50, 1060-70.

DRIED MILK—continued.

Suitable for babies, 1633.
 Process of manufacture, 1634.
 Nutritive properties are not materially affected by
 heat in preparation, 1635, 1639.
 Cost, 1643, 1645-6, 1651.
 Method of preparation, 1644.
 Liability to adulteration, 1653-6.
 On sale in Dublin, 1937-8: limited use of in Belfast,
 1944-7, 7808-10.
 Experiences as to, 2012-5.

DUBLIN.

Cooperation staff of inspectors in connection with
 milk supply, 1183-91, 1541-99.

Separation of Dublin to country milk in point of—

(a) Cleanliness, 190-1, 1070-3; cause, 309.

(b) Quality, 240-3; cause, 243, 349.

Improved condition of present-day dairy yards, 160,
 234, 1216-9, 1570-2, 5166; officers, 5164-5, 3319;
 milk vessels, 3462.

Inspection and condition of cows, 1223-2, cowsheds,
 1255-9.

Unsuitable sites of cowsheds, 1270-2.

Inspection of Irish-borne milk to ensure cleanliness,
 1307-11, 1344-7.

Need of bacteriological examination, 1512-6.

No protection at present against use of tubercu-
 lar milk, 1377-84, 1466-9, 5718-17.

Corporation regulations to ensure cleanliness re milk
 production—

(a) Milking with clean hands, 325.

(b) Cows' udders to be washed before milking,
 286, 1302.

(c) Washing appliances for milkers, 337, 1367-8.

(d) Milk must be covered, 325-6.

(e) Use of coveralls by milkmen required, 1273-86.

Price of milk, retail, 271, 3327; wholesale, 3275-7,
 3833-6.

Quantity of milk coming into, yearly, 502, 1250-5.

Seasons for distribution of milk supply coming
 into Dublin, 1280-1300, 1523-31.

Counterbalancing supply, 1300-1401.

Objection to obtaining country milk for Dublin
 supply, 3890-5, 3946-78.

Statutes as to cows, cowsheds, milkshops, and milk-
 selling, 1192-6.

Financial standing of dairymen in Dublin, 1413-21.

Removal of dairy cows outside city not advocated,
 unless under exceptional circumstances, 1574-8,
 3215-74.

Difference in Dublin dairy trade to-day and thirty
 years ago, 3107-3144.

Increased cost of cowkeeping in recent years, 5731-60,
 1090-33.

Milk appreciated as a food by artisan class in, 3711-20.

Children of Dublin poor do not get sufficient
 milk, 4054-7; reasons—poverty and ignorance,
 4058-9, 4066-75.

Milk records not kept in, 3286-6, 3843-3.

Dublin market; better class of cows exhibited in, ten
 years ago, 4540-7.

Strio Road Depot for supply of pasteurised milk,
 4002-5; (see also "Pasteurisation.")

DUBLIN NORTH, RURAL DISTRICT.

Number of dairies and cows in, 4674-85.

Administration of Dairies Order, 6060-6007.

DUBLIN SOUTH, RURAL DISTRICT.

Enforcement of Dairies Order in, 4581-99; and con-
 sequent improved conditions, 4593.

Complaints of outside stockholders as to milk pro-
 duced in, 4625-35.

Absence of palpably tuberculous cows in, 4644-8.

Number of dairies and cows in, 4634-88.

Causes of tuberculin-tested herds in, 4773-4847.

DUNLATH, LADY.

Growth as a means of supplying cottagers with milk
 all the year round, 1905, 1909, 2019-26.

Most suitable breed for Ireland, 2000-1, 2008-2100,
 1965-6.

Introduction of new and improved breeds, 1036-48.

DUNLEATH, LADY—continued.

- Milk records of the new and the Irish breeds, 1940-55.
Relative value of goat's and cow's milk, 1954-5.
Rearing and feeding of goats, 1957-74, 1961-5,
2006-16, 2026-7, 2078-9, 2078-84.
Cost of goats of improved breeds, 1977-9, 1986-8,
2029, 2033-4.
Purchase of, on instalment plan, 1994.
Purchase as an investment to improved breeding, 1960.
Proposed establishment of goat premium stations,
2030-1.
Goat's milk not suitable for creamery purposes, 1992,
1995, 2022.
Time of milking, and period of lactation, 1999,
2048-51, 2056-71.
Age of milking, 2059-61.
Goats as a preventive of abortion in cattle,
2078-2083a, 2110.
Cost of carriage of goats by rail, 2106-10.

DUNLOP, J. B., M.B.C.V.S.

- Plum as a cause of disease, 2682.
Hygienic measures in handling milk suggested, 2682.
Infectious disease more rare among cattle if fed on
lately saved food, 2684.
Application of the Widal test, 2686.

DUST will not carry typhoid bacilli, 6847 8.

E.

ENGLISH, THOMAS (Wholesale milk distributor,
Belfast, and member of the Belfast Corporation).

- Deals with up to 2000 gallons daily, 9380; the milk
comes entirely from outside Belfast, 9374,
9383-5.

There is sometimes reason to complain of the
manner of railway carriage, 9382; and some-
times of want of cleanliness, 9375, 9386; but
such cases are becoming fewer, 9375.

A suitable type of can is coming into use,
9388-9.

- Pasteurises the milk, 9475, 9398-9400; at a
temperature of 180 degrees, 9390, 9400-7. At
first the milk was not popular, 9378; but now
there is no difficulty, 9379, 9475-9. Costs,
9395-5.

Treatment to prevent contamination is dis-
tributing, 9404-6.

- From experience does not think pasteurisation injures
the milk, 9391.

- Also sells unpasteurized milk, 9396; the retail price
is usually the same as for pasteurized milk, 9401-3,
9409-2.

- Milk not appreciated, even when there is money to
buy it, 9407-17.

- The poorer districts of Belfast are not supplied with
inferior milk, 9418.

Milk is often contaminated in the home, 9419-23.
Cleanliness is enforced in the shops, 9441-7.

- Separated milk, sale of, in Belfast, 9424-35.
Does not lead to the adulteration of whole milk,
9495-8.

- There are no milk distributing barrows in Belfast,
9457-60, 9465-7.

- Makes no bacterial test of the milk, 9459-61.
There is no need of a municipal dairy, 9469-4.

- Suggests other means than milk, when the spread of
infectious disease is attributed to the milk supply,
9468-9.

- Leaves the inspection of milk to the local authorities,
9488-91, 9508-10; but communicates with the
Public Health Authority in cases of adulteration,
9492-4.

- Recommends inspection from a central authority,
9502, 9506-10.

- In administering the Dairies Order, inspection as
well as directions should be given to farmers,
9503-4.

- Bottles/milk and cream should come under the Order,
9504-7.

- Milk from small farmers is not of poor quality,
9499, but is sometimes mixed during the winter
months, 9499.

ESTATES COMMISSIONERS.

- Out-offers to cottages on holdings provided by,
unsuitable as dwellings, 112-7.
Suggestion that the, advance money to tenant
purchasers for cowsheds and dairies, 2379-81.
Power of the, to reserve "cow-past" for common use
of labourers on sale of an estate, 2377.
Suggestion that a larger area for (a) grazing, (b)
cropping, be reserved, 2386-7.

F.

FALLS, THOMAS, J.P.

- Refers to process for preserving milk, freed from
impurities and of uniform quality, 6896-6913, 6945,
6957.

- Cost of plant, 6900, 6904 8, 6945-54.

- The process is at present in the experimental stage,
6914-5, 6920-35, 6936-91.

- Suggestion that the Department should test the
process, 6938, 6960.

- The bottled milk could be stored and retailed like
cream, 6915-25, 6968.

- Milk treated by the process cannot be used for butter-
making or repacking, 6966-53, 6981.

FARMER AND LABOURER. Relations between.
See "Labourer."FAWCETT, FREDERICK P. (Clerk to the Rathman
Urban District Council, Dublin).

- Licensing, instead of registering, dairymen
necessary, with power to seize licence, 2661-2.

- Grating land for dairy cows should be subject to
license, to ensure proper water supply, 2392,
2398-9.

- Reform of the Dairies Order in Rathman Town-
ship, 2660, 2662-12.

- Inadequate farm on conditions, 2664, 2701-4.

- Publication of corrections in newspapers at defen-
dant's expense suggested, 2694-2700.

- Introduction of fresh cow into a dairy yard should
be notified to local authority, 2706.

- Need of inspection of cows at farm to detect tuber-
culosis, 2705, 2703-4.

- Restrictions on compulsory slaughter of tuberculous
cows, 2704.

- Exposure of milk for sale: evasion of the law as to,
2715.

- All milk on licensed premises should be considered
as exposed for sale, 2713-7, 2731-3, 2765-7.

- Separation of dairy shop and dwellinghouse
desirable, 2726-8.

- Refusal to give sample of milk to avoid prosecution
for adulteration, that maximum fine for, be
removed, 2718 9.

- Dairies Order should be administered by a Central
Authority, 2734-5; and independent local veterinary
inspectors appointed, 2761-3.

- No power to inspect cows leaving the district in the
summer, 2739-42.

- Devolve power for Council to inspect cows and byres,
outside district, 2732, 2761.

FINES.

- For breaches of the Dairies Order and Bye-laws three-
fold.

- For not registering as a milk-vendor, Dublin,
normal penalties, 1197-9.

- For milking cows with dirty udders, and
attendants milking with dirty hands, inadequate
penalties, 1263-5, 1404-6.

- For neglecting to wear overalls when milking,
1275-6.

- For dirty vessels. Fines of 5s. imposed, though
prosecuting solicitor's fee alone was 10s. 6d.,
2701-4.

- Other cases: inadequate penalties, 865-869,
6074-80, 8496-71, 9129-30, 9463.

- The principal punishment is publicity and
consequential loss, 810, 9094-9, 9214.

FINES—continued.

The magistrates in Belfast co-operate in the enforcement of the Dairies Order, 1912-3; also in Newry district, 18448-52.
Inconsiderable fines can be paid without financial loss, 8850-1, and are not deterrent, 8848, 9033-4.

For adulteration of milk.

Inadequate fines, 2996, 6574-7, 6657-10, 6940-1, 7030-1, 8029-74.
Cofins (Belfast), 6916-9.

For adulteration of butter-fat.

Inadequate fines, 2944-6.

General.

Inadequate penalties for frauds in connection with food supplies, 3479.
Culpability of magistrates, 3479.
Improvement, not fines, necessary, 3479-80.
Publication of conviction in newspapers at defendant's expense suggested, 3509-3700.
In France convicted persons are required to put a notice of conviction in their windows, 1600, 2699, 2788.

FLIES as a source of infection of milk, 335, 416-25, 429-67, 2683, 6843-6.

FLOOD, JOHN (Dairy Inspector, North Dublin Rural district).

Administration of the Dairies Order in the district, 5992-6007.
The Dairies Order has restricted the sale of milk, 6010-5.
Difficulty of getting milk unless the demand is continuous, 6015-24.
Farmers object to goats, 6027-38.
Enforce no supervision over cows coming from the city in summer, 6040-2, 6047-62.

FOOD AND DRUGS INSPECTORS.

Practice as to appointment of, 8005.
Doubt if the appointment of unpaid (Consultatory) inspectors is advisable, 8849-50.

FOOD VALUE Instruction given in National Schools as to value of foods, 2996-3001.

Value of milk as a food not sufficiently appreciated, 4064-6, 4658-9, 4907, 4956-10, 6549-51, 6286, 6044, 7325-6, 8394, 10800-3, 11081, 11205, 11384, 11388-90, 11628-34, 12060-12, 12019.

Due to ignorance, 725.

Instruction to young mothers on the subject desirable, 11203-6.

Milk producers who do not keep enough milk for home use, 11142-5.

Its value should be taught in schools and in pamphlets, 8325-7.

G.

GALLOWAY BULLS Sale of, by Department of Agriculture, 5435.

GLASGOW POLICE AMENDMENT ACT of 1880.
Powers of Glasgow Corporation under, re outbreak of tuberculosis disease attributable to milk supply, 3086-9.

GLASNEVIN (ALBERT AGRICULTURAL) COLLEGE.

Milk records kept at, 5435-43, 5490-3, 5477-8.

Very little change in price of cows bought for, in last 50 years, 5444-53.

The cost of keeping has not increased, 5454-9.

GOATS.

Experience of Lady Dunsleath (pages 65-69) and Sir Richard Barter (pages 68-70) as breeders of improved breeds of goats.

Number of, 2324.

Prejudice against, because of destructive habits, 1945-8, 4246-50, 4571, 4613, 5075-80, 6027-30, 10221-3, 11256.

GOATS—continued.

Tethering, 2036-7, 2078.

As substitutes for asses for labourers, 1035-5038.

As a means of supplying (1) cottagers with milk all the year round, 1035, 1090, 2010-20; (2) rural districts, 3431-39, 3496-6, 4109-327.

Milk records of the new and the Irish breeds, 1944-48.

New and improved breeds, 1896-45.

Most suitable breed for Ireland, 2000-1, 2026-2106, 1065-6, 2050, 2260-4.

Department's scheme for improvement of, 3324-6.

Rearing and feeding of, 1907-75, 2001-3, 2023-7, 2078-84.

Cost of improved breeds, 1977-9, 1984-8, 2029, 2066-8, 2070.

Purchase on instalment plan, 2006.

Prices as an inducement to improved breeding, 1980.

Prizes given for, at Newry Agricultural Show, 11406-8.

Goat premiums stations. Proposed establishment of, 2030-1, 2278-80, 4222.

Time of kidding, and period of lactation, 1990, 2048-51, 2059-71, 2121, 2358-72.

Age of mating, 2059-91.

As a preventive of abortion in cattle, 2059-63a, 2116.

Are susceptible to tuberculosis, 15; freedom of, from tuberculosis, 6909.

Cost of carrying by rail, 2106-8, 2060-7.

Appraisal of goats, 1978, 2126-8.

Health, 2008-2010, 2151-2, 2371, 2373-83.

Restriction on importation of, 3434-6.

Use of roadways by, 3439-69, 5482.

Infectious locally of Lady Dunsleath's improved breed of goats, 8216-23.

GOAT-KNIPPERS.

As to registration of, under Dairies Order, 1908, 62-3.

GOAT'S MILK.

Comparison with cow's milk, 340-343, 1963-8, foot-note, p. 84.

Good quality of, 3801, 6027.

Danger of Maltine fever from, 6029-30.

Goat's milk not suitable for creosote purposes, 1942, 1955, 3002.

Centres, 2245-7.

A baby should be kept either to goats' or cows' milk, 11233.

GORDON, JAMES SCOTT (Deputy Assistant Secretary and Chief Agricultural Instructor in the Department of Agriculture and Technical Instruction).

Milk Production.

Decreased export of butter in 1910 compared with 1907, 5337-47, 6073.

Popularly attributed to a reduction in the milk yield, 5337-44, and other causes, 5367.

Alleged reduction of milk supply attributed to seven specified causes, 5367.

Contagious abortion less prevalent among cattle, 5367.

Wages and the standard of living have risen in 25 years, 3570-1.

But this would not account for the reduced export of butter, 3533-5, 3463-7; nor would the sale better through the parcels post, 5077-82, nor would the sale of the best breeders out of the country, 3383-7; and there has been a steady increase in the number of milk cows in Ireland, 3392.

Table showing reduced milk production in winter compared with summer, 5387.

Number of milk cows in Ireland for each year since 1854, 3392.

Number and value of cattle exported, 1904 to 1910 inclusive, 3392.

Total number of cattle in the country, 1900 to 1910 inclusive, 3394.

Increased number of calves being reared, 3394-3400; which are in better condition than formerly, 3401-2.

Reduced butter export due to the milk being fed to a greater number of calves, 3394, and in more generous quantities, 3404.

Department's Cattle Scheme for the Improvement of *Lux Black*, described, 3407.

Statement showing number of premiums given each year since 1900, and breeds of cattle subsidised, page 177.

GORDON, JAMES SCOTT—*continued*.

- Red Lincolns as milkers are not better than Short-horns, and on *dozen*, 5409-14.
 Losses made by Department to small farmers to purchase premium bulls, 5418.
 Rate of insurance for bulls, 5418-22.
 Department inspectors are willing to advise farmers what bull to buy, 5423.
 Application of the tuberculin test to bull tests with the County Committee, 5423-31.
 In practice the premium is divided between the breeder and the purchaser, 5423-4.
 Reply to the allegation that the Department's premium bulls are responsible for a decrease in the milk supply, 5425-43.

Department's Dairy Cattle Registration Scheme, for improving the milking qualities of Irish cattle, described, 5476-80, 5475-8.

- Keeping milk records valuable as a means of eliminating bad milkers from a herd, 5481.
 Also tests should be made to ascertain percentage of butter fat, 5482-90.
 Influence of the bull in breeding milk-producing cows, 5481.
 Difficulty of procuring bulls bred on milk pedigree lines, 5481.
 Value of export cattle trade compared with export of dairy produce, 5491.
 Cow-leasing associations encouraged by the Department, 5493-5502.
 The season of milking as an influence in the yield of milk; experiments re, 5503-8.
 Financial results, 5509-31.
 Winter dairying profitable, when cow gives 620 gallons, 5505.
 Other considerations in favour of winter dairying, 5514-18.

Scheme of Instruction in Butter-making, described, 5521.

- Means of reducing acidity. Table showing number of cows in each County of Ireland in 1905-11, 5522-3.
 Improvement of goats: proposed scheme of Department, 5524-5.
 Separated milk: analysis of, 5527.
 Use of separated milk in conjunction with other foods as a food for animals, 5527-31.
 Difficulty of rural labourers to procure milk—causes, 5532-5; suggestions to meet the difficulty, 5542-557.
 Areas of scarcity, 5552.
 Sale of separated milk by creameries, 5555-46.
 Question raised whether the Dairies Order should apply to a farmer supplying milk to labourers, 5548-60.
 Suggested co-operation by labourers granting their cows on a common pasture, 5565-74.
 Milk-producing and milk-vending by local authorities and voluntary associations discussed, 5575-68.

Tuberculosis in Cattle.

- Representations of the Cheshire Technical Instruction Committee in 1899, 5589.
 Proved the reliability of the tuberculin test, 5591.
 Need of bacteriological examination of milk to detect tubercle bacilli, 5591.
 Cow without apparently diseased udder may give tuberculous milk, 5591.
 Misrepresentation of the udder not reliable in detecting tuberculous udder, 5591-4.
 A "pincer" may be eradicated from causes other than tuberculous, 5593, 5605.
 Two methods of discovering tuberculous cattle—
 (1) By bacteriological examination of the milk; and tracing the tuberculous milk to the cow;
 (2) By applying the tuberculin test to all cows, 5601-23.
 As to contamination of cows with diseased udders, 5603, 5644-5.
 To stamp out tuberculosis in cattle an isolation shed is necessary, 5623.
 Debatable effect of increasing the valuation on erection of new houses, etc., 5623.
 Conditions on which the Department is prepared to help farmers to stamp out tuberculosis, 5624.
 Regulations in U.S.A. as to sale of milk and cream, 5626.

GRAZING for labourers' cows.

- Families (40 Kilbars), 4385-95. (Newry) 11321-9.
 Lack of (Co. Meath), 4123, 4128-74.

GREAT SOUTHERN AND WESTERN RAILWAY (Ireland).

- No complaints have been received as to the means of carriage and handling of milk, 5642-9, 5667-8, 5675-8, 5681-90.
 The Company have refrigerating vans for the carriage of butter, 5700, 5683-6.
 The rates paid to the dairy persons from using them usually, 5681-9.
 Refrigerating cars for carriage of milk have never been asked for, 5682-2.
 But the Company would consider the expediency of providing them if necessary, 5686-90.
 There is a special milk van on lines that carry milk, 56910-20.
 Contamination in transit by rail, 56923-7, 5676-8.
 Tampering with milk while in Company's charge unlikely, 56942-3.
 Special rates for milk for manufacturing purposes in Limerick district, 5679-87.
 The Company do not refuse to accept any cows because of their condition, 5699-75, 5696-7, 5696-9.
 Dirty cans or milk have not been noticed by Company's employees, 5696-94, 5696-10000.
 The Company, as common carriers, are not liable to provide a place for the transfer of milk to carts, or for taking samples, 56936-41.
 The Company would not object to receive milk in locked cans, 56947-8, 56956-9.
 Difficulty of loading milk-cans in two-tier waggons, 5691-2, 56967-80.
 Quantity of milk carried over Company's system to Dublin, 56951-2.
 Sale of milk by employees of the Company, 5693-7, 56938-35.

ORRIG, JAMES, M.R.C.V.S. (Veterinary Inspector, Holywood Urban District, and member of the Belfast Corporation).

- Want of appreciation of the value of milk, 7233-4.
 Cases of cows with suspected tuberculous udders discovered at inspection, 7237-65.
 Factors leading to cows-keepers, 7266-8.
 Abominable shortage of milk in Counties Antrim and Down to breeding from Shorthorn bulls of non-milking strains, 7232-4, 7232-4.
 Beef improved at the expense of milk, 7310-2.
 Milk records are essential to establish the milk pedigree of bull calves, 7377-81.
 What has been done in Downshire by using bulls with good milking strains, 7394.
 The Department should insist on Ulster County Committee buying more bulls of milking strain, 7393-9.

The Dairies Order.

- The advantage of having local officers supervised by independent superior inspectors, 7391-7.
 Need of central control to secure uniform administration, 7399-7392.
 Respective duties of lay and professional inspectors, 7395-6.
 The Bang method of stamping out tuberculosis in cattle described, 7345-6.
 Chiefly diseased cows are a danger to persons and animals using their milk, 7337.
 The £10 compensation limit for slaughter of cows should be raised, 7338-32.
 Winter dairying is only profitable when average yield per cow is over 650 gallons 7335-9.
 Improvements effected in milk production under the Dairies Order, 7348-60.
 Tuberculosis in cattle is on the increase, 7360-7.
 Qualifications to be required of a Dairy Inspector, 7376-8.
 Milk is not procurable in the hilly districts of Counties Down and Antrim in winter, 7404-5.
 Prefer the old Irish cow to goats for these districts, 9294-6.
 Votes of thanks to the members of the Commission, 7722.

GUINNESS'S BREWERY. Evidence of Chief Medical Officer of, p. 162.

- Bottled milk supplied to employees at 3d. a quart, 5649-54.

H.

HARRIS, JOHN G. (Chief Assistant to the Town Clerk, Belfast).

Read extracts from the Minutes of the Public Health Committee, Belfast, supplementary to the correspondence read by Mr. W. A. Bell (q.v.), Chairman of the Belfast Rural District Council, as to tracing an outbreak of diptheria in Belfast city to milk supplied from the Rural District, 9701.

HATCH, JOSEPH, J.P. (President of the Dublin Cow-keepers and Dairywomen's Association, Dublin). Difference existing between the Dublin dairy trade thirty years ago and to-day:—

Better gains: cheaper cattle, labour, and fodder, and better price for milk, 3107.30, 3143.

Cost of milking increased, 3133.5.

The price of the fattened cow was less, 3136.9.

Lack of adequate remuneration has reduced the number of cow-keepers, 3140.4, 3197.5, 3183.9, 3199.20.

Non-professional inspectors under the Cowhide Order not desirable, 3145.31.

Tuberculosis in cattle in Dublin district, 3182.9.

Improvements in dairy production of milk under the Dairies Order, 3160.6.

The Order is not responsible for driving men out of the trade, 3167.8.

Re compensation for slaughter of tuberculous cows, 3169.72.

The Order should be uniformly enforced everywhere to prevent unfair competition, 3173.7, 3190.6.

Lack of public encouragement to have herds tuberculin tested, 3179.80, 3200.

Cheapness of price is the chief consideration with purchasers, 3183, 3200.4.

Consumption of milk in private houses, 3183.4.

Sanitary inspectors should not be dairy inspectors, 3197.6.

Restaurants selling milk produced on their own farms should come under the Dairies Order, 3196.6, 3205.9.

"Nursery milk" supplied at enhanced price, 3231.

Licensing, instead of registering, dairy premises would benefit the trade, 3224.9.

Co-operative distribution of milk by Dublin dairymen not probable, 3243.1.

Sale of milk by one dairyman to another to supply shortage, difficulty of preventing, 3252.3.

Dishonest employment dairymen's reputation at the mercy of, 3254.

Need of inspection by city authorities of cows supplying milk for the city, 3249.33.

Objections to removing city dairy cows to the country just outside the city, 3253.74.

Wholesale price of country milk in Dublin, 3275.7, 3253.6.

Milk yield of cows, to-day and formerly; no data forthcoming, 3280.6.

Deterioration because of change of breed, 3287.96.

Difference in morning and evening milk, 3301.5.

Possibility of pure milk being under legal standard for fats, 3307.14.

Tuberculin test and difficulties of keeping cows subject to, 3315.8.

Milkers. Housing and water supply for, when in the country, 3303.32.

Objection to leaving milk vessels in the shop, 3344.5.

Typhoid carriers, the trade would assist to prevent employment of, 3344.9.

Registration of addresses of dairymen's employees, 3348.63.

Tuberculin test: grant by Danish Government for application of, 3362.8.

HAYES, MISS HONORIA M. (Sanitary Sub-Officer, Rathfriland Urban District).

Dairies which have been closed by the enforcement of bye-laws have been replaced by others, 2962.

Proper cleansing of milk vessels, tugs, etc., gradually effected, 2964.5.

Milk is kept covered to exclude flies, 2984 drainage of the premises inspected, 2985.

Any portion of the house in which milk is stored should be open for inspection, 2985.9, 3046.

HAYES, MISS HONORIA M.—continued.

Buttermilk, foreign bodies found in a sample of, 2990.

Buttermilk churns; brass indicators in, should not be allowed, 2992, 3015.

Milk sold out of kitchens; difficulty of obtaining samples, 2996.

Milk kept in a store adjoining a milk-shop cannot be sampled, because not exposed for sale, 3030.

Skimmed milk for sale should be suitably labelled, 3032.

Urban authority cannot supervise milkers and milk vessels during summer, if outside the district, 3035.9.

Legal standard for buttermilk, 3111.2.

Instruments designed for examination of churns, 3013.

HENRY, R. W. (Agriculturist, Jerroldspass, County Antrim).

The Dairies Order is enforced in Newry No. 2 rural district and is appreciated by the farmers, 30407.12, 10609, 10607-302.

To have good quality of milk there must be proper breeding in the cow, 10413-21.

The milk-producing quality of cows has decreased, 10421; due to breeding from Shortfarms of a non-milking strain, 10423-4, 10430.1.

The price of cows has increased, 10424.5, 10429.40.

Premium bulls should have a milk strain, 10423-9, 10427, 3265.8.

Favours the Shortfarms (with milk strain) for breeding, 10428-38.

The Department are not doing anything to induce farmers to breed a milking strain, 10401-29.

Reef is encouraged at the expense of milk, 10420.1.

An annual premium should be offered for dairy bulls as for bulls for stores, 10422-45.

Keeps milk records under the Department's scheme, 10422-47, 10471-83, 10480.8.

Has found the tuberculin test reliable, 10428-60.

Would apply the test, and gradually weed out tuberculous in dairy cows, 10461-4.

Number of cowkeepers reduced owing to the existing nature of the work, 10483.7.

Difficulty of getting dairy hands, 10488-96.

The best milk cows are being exported, 10441-3.

Paying price of milk, 10426-70.

An essential to the elimination of tuberculosis in cows is State compensation, 10499-606.

Not too much stress must be placed on milk records at selecting types for breeding for milk, 10464-96.

Prices fetched by registered dairy bulls, 10466.8.

HOLDER, EDWARD (Principal of the Newry Technical School).

Dairies Economy Classes in Newry, 12023-3.

HOLMES, JAMES (Clerk of the Newtownards Rural District Council).

Circumstances in which the Council resisted the application of the Belfast and Bangor local authorities to inspect their dairies, 9072.36, 9038.

The Rural Council resist such inspection on general grounds, 9034.6.

Where the Dairies Order is not enforced the Local Government Board should be appealed to, or the sale of milk from that district forbidden, 9065.4.

There is scarcity of milk in parts of the district, 9037-44, 9062.3.

The Dairies Order has possibly restricted the sale, 9054.9.

Action taken locally to teach the value of milk as a food, 9045.9.

Tuberculosis is a notifiable disease in the district, 9069.

Death rate per thousand, 9061.

Sanitary precautions; disinfection, prohibition to handle milk, etc., 9067.

HOSPITALS, Dublin. Milk supplied to, not inspected, 1606.7.

I.

IMMUNISATION against disease; how caused, 6884.
Against tubercle bacilli. Persons should not be
suffered to drink tubercular milk to secret,
6884-94.

INFANTS. Pats required for feeding, 4987-385.

INFECTION OF MILK. See "Contaminated."

INSPECTION OF DAIRIES, COWS AND MILK UNDER THE DAIRIES ORDER OF 1908.

The Dairies Order of 1908 provides inter alia for the
registration of cowkeepers and milk-vendors, the
lighting, ventilation, drainage and water supply of
cowsheds, and for the inspection of cowsheds.
The Order applies to all Urban and Rural District
Councils, 7.

Imposes two specific duties—registration and
appointment of officers, 7.

Number of districts which have failed to appoint
inspectors, 71.

No guarantee of uniform administration, 104-8.

To ensure uniformity of inspection, reports
should be made on printed forms, 455-60.

The administration of the Order may be inefficient
notwithstanding the appointment of inspectors.
N. Dublin District, 604-617, 666-669, 681, 694.
696; Co. Down, 4644-5; Barr, 5172, 5188-90;
Antenn B. D., 8745-7, 8758-61, 8808-22.

Difficulty of independent inspection by local
officers, 664-5, 875-6.

District for which no inspector has been appointed,
18851-2.

Larne Urban District. No veterinary inspector
appointed. Case of a cow with a tubercular udder,
9608-24.

Kilmeek Rural District refused to appoint a
veterinary inspector, 5-8.

Council over-ruled by the Court of Appeal, 58-59.

More supervision is required in Rural Districts to
ensure compliance with the Order, 7857-62, 8006-5.

Failure of outside dairies to comply with the Dairies
Order—

Failure to register, 6596-30, 8894-6601, 7960,
10981-93.

Art. 23 of the Order enables a Local Authority
to get lists of milk producers sending milk
into the district, 75-81.

Milky hyens, with neither light nor ventilation,
defective floors and dirty cows, 7112, 8728.

Antenn Rural District sends milk to Belfast and to
crematories, 8734-43; makes no examination as to
the health of the cows, 8745-52, 8758-61, 8809-22.
The Council object to Belfast city officials inter-
fering with the administration of the Order in the
district, 8758-65.

Cows sent from Dublin to the country in summer are
not under inspection, 715, 1281-92, 1370-1,
1366-8, 1881-4, 3248-52, 8725-7, 4640-53, 4748-
53, 5994, 6045-63.

Cows sent from Belfast to the country in summer
are not inspected by the Rural Inspector,
6627-9.

Outside inspection of hyens made ultra vires in
the Belfast dairy inspector, 1365-80, 6239,
4654-6, 6715, 6944, 6714-50.

Defective hyens reported on, 8738-35.

Increasing difficulty of making inspections,
6526-36, 6632-6, 6736-5.

Milkers of cows on summer grass not under inspection,
932-4, 1377-8, 3323-32, 4366-7, 4825-30.

Power of Local Authorities in England to inspect
hyens and milch cows outside their boundaries,
93, 170, 346, 1317-9.

Action taken by English and Scottish Corpora-
tions under their special powers to safeguard
milk supply, 371-4, 585-6.

Beneficial results from exercise of such powers,
1017-21, 1327-9.

Power given under s. 19 of the Tuberculosis
Prevention (I.) Act, 1936, to local authorities to
inspect conditions under which milk consumed in
their district is produced, subject to the approval
of the Local Government Board, 93, 1282, 6163.

INSPECTION OF DAIRIES—continued.

Borough or Urban authorities which have sought
power under section 19 of the Tuberculosis
Act, and been refused.

Dublin, 197-205, 1281-92, 186-90.

Bathrooms U. D., 2750-61.

Belfast, 6684-8, 6166.

Barrington U. D., 8042-3.

Newry U. D., 13308-8.

The giving of this power advocated for—

Dublin, 306-7, 504-6, 575, 585, 1317-33.

Bathrooms U. D., 2784.

Belfast, 6771-8, 6791-2, 6864, 7108-19, 7615-7.

Larne U. D., 8095-7.

Barrington U. D., 8344-7, 8364.

Re-consideration that powers of outside inspection
be given to Municipalities, 644.

Policy of Local Government Board (Ireland) in the
matter, 94, 302, 6166.

Policy criticised, 1286, 1470-4.

Objection to inspection of outside dairies by Belfast
officers, 6089-92, 7111, 8828-43, 8703-65,
9031-6, 9064-7, 9073-80.

Even when infectious disease was suspected,
6084-6104, 6112.

Danger of delay under present procedure,
6103-8.

Power to inspect where disease is suspected,
6173-7.

Suggestion that the local inspectors could do all
that is necessary as a case of complaint, 8096-
21, 8064.

Instead of giving power of outside inspection,
suggests the uniform administration of the
Order, 8728-33, 8791-6, 9005, 9063-91; or the
sale of milk from that district should be
stopped, 9066.

The Belfast Rural District Council are willing to
co-operate with the Belfast city officers to
discover the source of an outbreak of infectious
disease, 9067-70, 9073, 9065-8.

In the case cited the Belfast Medical Superin-
tendent Officer of Health found, as the result
of personal investigation, diphtheria germs in
a dairy employee's throat, 9069, 9071-3.

Extracts from Minutes of Public Health Com-
mittee, Belfast, as to tracing an outbreak of
diphtheria in Belfast city to milk supplied from
Belfast rural district, 3759.

Circumstances in which the Newtownards Rural
Council resisted the application of the Belfast
and Barrington local authorities to inspect their
dairies, 9032-36, 9068.

Rural districts not availing that power of outside
inspection be given to a city authority, 5770-1,
9084-7, 9143-4.

No objection to investigation by a professional man
re milk production, 7104, 11085-6, 11137-8.

The objection to certain rural districts to the Belfast
Inspector is that he is not a professional man,
7540-1, 7632-5, 8007, 8964-7, 11088.

Explanation why rural dairies are not up to the city
standard, 4086.

Proposed administration of the Order by a Central
Authority and the appointment of whole-time
inspectors. See "Dairies Order—Administration
of the Order."

Need of inspection of all milch cows, 4125-7.

Absence of official inspection of cows at Linn, 4201-2.

Inspection of town-borne milk in Dublin, 300-4, 506,
1307-15.

Appointment of whole-time Veterinary Inspector for
the county advocated, 4630-5.

INSPECTORS.

Veterinary Inspectors.

Not always veterinary surgeon under General
Order of 1906, 68.

The work of, not supervised, 141.

Relations between, and Medical Officers defined
162-3.

Duties of, 603.

Are required to report to the Department of
Agriculture cases of tuberculous cows, 66-

Lay inspectors under Dairies Order not desirable,
8145-51.

Qualifications of, 151-156, 1183-4.

Efficiency of lay inspectors, compared with veterinary
surgeon inspectors, 109-111, 817-819, 1185-94.

INSPECTORS—continued.

- Respective duties of lay and professional inspectors, 7909-5.
 Preference for the professional to the lay inspector, 8094, 1187-24.
 Reports to come with tubercular orders should be sent to Medical Officer of Health, 699-734.
 Proposed appointment of whole-time, for one or two counties, 10929-33.
 Proposed appointment of, by County Council, and paid by the local Councils combined with the State, 6364-4.
 Dairy Inspector, duties of, 466, not required to hold sanitary certificate, 862-3. Qualifications desirable, 6228-9, 7876-8, 8807, 9015-4.
 An unqualified man may make an efficient dairy inspector, 6116-8.
 Sanitary inspectors should not be dairy inspectors, 3207-8.
 Inspectors should have power to prosecute, without reference to the Sanitary Authority, 9654-61.
 The Constabulary might act as inspectors under the Order, 8834.
 Reports of Officers under the Order are not furnished to the M.O.H., 286.

INSURANCE OF CATTLE.

- Premiums prohibitive, 4260-5, 3635-42, 9009-13.
 Need of, at reasonable rates, 11535-40.
 Insurance of premium bulls, 5418-22.
 Insurance of milk cows; Mr. J. McDermott's scheme to—
 (1) Indemnify the farmer at a cheap rate against loss on death of cows;
 (2) Encourage a larger and better milk supply;
 (3) Increase the interest of the farmer in the creamery;
 (4) Enable the creamery to insist on a pure milk supply;
 (5) Remove rivalry and friction among neighbouring creameries, 10692-6, 10700-72.
 The scheme is in operation, 10750-1.
 Explanation of the financial side of the scheme, 10822-9.
 A farmer, knowing he would secure the value of a cow dying, would not be so tempted to sell her, and would be more likely to breed from her, 11886.

IRISH AGRICULTURAL ORGANISATION SOCIETY.

- Origin and objects of, 905-1.
 Connection with co-operative groceries, 962.

J.

- JORDAN, JAMES A., M.B.C.V.S. (City Veterinarian, Belfast).
 Assign value in size of cow with suspected tuberculous udder, 7076-91, 7097-7104, 7155-7200, 7242.
 Is in favour of paying full market-value of cow compulsorily slaughtered, 7092-6.
 Filthy and defective hyacinth clips, 7108-22.
 proving that the Dairies Order was not being enforced, 7114-6; and thus constitutes unfair competition with city dairymen, 7117-9.
 Reason for abnormal slaughter of cows in Belfast 7126-7, a fair percentage have tuberculous lesions, 7128-30, and as milk-producers were a danger to the public health, 7134-5.
 Indiscriminate slaughter of calves in Belfast, 7137-59.
 Would require cow-keepers and herds to be licensed, 7160-4, 7240-4.
 Advocates appointment of a whole-time officer to enforce Dairies Order, 7165-70.
 Prevalence of tuberculosis amongst cows and heifers, 1908-1911, 7171-2.
 Would give veterinary inspector power to apply the tuberculin test in suspicious cases, 7176-80.
 Difficulty of purchasing cows subject to the tuberculin test, 7204-7.
 The retailer of dairy milk should be held responsible, 7212.
 Would prevent the milking of overstocked cattle in markets, 7214-22.
 Pigs should not be allowed in yards where milk cows are kept, 7226-30.
 A cow may give tuberculous milk, without having tuberculosis of the udder, 7233-7.

K.

- KEAN, DR. J., J.P. (representing the Newry Urban District Council).
 The irregular customer has difficulty in getting milk in Newry in the winter months, 11140-32, 11173.
 Labour conditions in Newry; the mothers work in the mills, there is scarcity of regular work for the men, and the children's health suffers, 11131-48, 11186-213, 11215-8, 11240-22.
 Value of milk as a food not sufficiently appreciated, 11256.
 Outbreak of typhoid fever; milk supply suspected as the cause, but case not proved, 11173-92.
 Approval of expenditure of public funds to ensure a milk supply to reduce infantile mortality, 11213-7.
 Milk depots would be a boon to milk-workers, 11247-8.
 Prevention of tuberculosis is better than cure is Senators, 11238-39.
 Separated milk, with the addition of fat, would be a useful article of food for poor people, 11272-6.
 KENNEDY, E. (Cattle breeder, Countess Dublin and Kildare).
 Detention of cows in the creamery districts in the South, 4268-88.
 Attributable to—
 (a) Tubercular separated milk returned by the creameries, 4269-93, 4314-21, 4339-44.
 (b) Improper accommodation for cattle by day and night, 4331-4.
 (c) Breeding from inferior bulls, 4337-44.
 (d) Contagious abortion and white sewer, 4386-4402.
 Trade in cows in poor condition, probably for sausage meat, 4394-8.
 Milking of (tuberculous) cows in flues into unclean vessels, 4398-9.
 Absence of official inspection of cows at fairs, 4300-2.
 Sale of milk restricted by the Dairies Order, 4387-9.
 To eradicate tuberculosis, full compensation for condemned animals should be paid, 4334-44.
 As to milk for occupants of Union workhouses, 4345-56.
 Grazing facilities for labourers' cows, 4345-56.
 Leaving of cows in creamery districts, 4404-8.

KERRY COUNTY LABOURERS' scheme for purchase of milk cows, 3372-95.

KILMALLOCK RURAL DISTRICT COUNCIL refuse to appoint Veterinary Inspector under the General Order of 1909, 6-8. Council overruled by Court of Appeal, 26-33.

KILWORTH CAMP. Outbreak of typhoid fever at, 379-380.

L.

- LABOUR, AGRICULTURAL.
 Scarcity of efficient labour. See "Dairy Trade."
 LABOURERS.
 Get milk from the farmers for whom they work, 7432-8, 7439-7500, 8246-9, 8273, 11802-21, 11839-46, not otherwise, 11811, 11818.
 Regular labourers get milk as part wages, 4433-9, 4503-4.
 Changed relations between labourers and farmers, 1006-17.
 Grazing for cows of,
 Facilities given, 4485-95 (Co. Kildare), 11821-51 (Newry district). Not given, 4123, 4128-54 (Co. Meath).
 The labourer's independence of the farmer is a source of his difficulty in procuring milk, 4347-51, 5026, 5232, 5297-8, 5325-5342, 10160-3, 11869-501.
 Cows (Co. Meath), 4158-54.
 Rural labourers have difficulty in procuring milk, 1009-10, 3373-88.
 LADY TALBOT MILK INSTITUTE, Melbourne.
 See "Talbot, Lady."

LAFFAN, DR. THOMAS, M.R.C.S.I. (of Cashel).

Advocates compensation in the sale of milk in return for fair price, 5830-5; difficulties to be faced, 5843-6.

Famous municipal dairies, if they could be set up quickly, 5853.

Prefers voluntary bodies to voluntary co-operation to deal with milk question, 5855.

Strained relations between farmers and workers accountable for scarcity of milk for the latter, 5857, 5862.

Scarcity is also due to rules of carrying on the dairymaking trade, 5865, 5869, 5871-2.

A mere increase in the milk supply will not meet the difficulty of the poor man, 5865, 5871-2.

Mr. Russell, M.P.'s, statement, that the milk difficulty at Athlone had been solved by the distribution of food, denied, 5867-68.

Advantages of the English Alliance Milk, 5875-7.

The community should not be taxed to change milk for the working population, 5847-9.

Proposed appointment of a milk analyst for Ireland to test all samples, 5860.

In prosecutions for adulterating milk, would give right of appeal to County Court Judge, 5848-50.

Suggests that the Constabulary might act as inspectors under the Dairies Order, 5854.

Aspects of control control in enforcing the Dairies Order, 5855-7.

Much more necessities of goods, 5875-80 good quality of milk of, 5883.

Difficulties of keeping a Kerry cow by labourers, 5882.

LAND ACTS OF 1903 AND 1906.

Power of Estates Commissioners to reserve a "Coveplot" for common use on sale of an estate, 2177.

LAND TENURE.

Resolves a cause of scarcity of milk, 2151-2.

Division of land among small holders as a remedy for scarcity of milk, 2167-72.

Use made of new holdings, 2227-42.

LAIRS ORDER. As to enforcement of, in Dublin, 1306-6 4753-7.

LAMBERT, H. H., M.R.C.V.S. (Veterinary Inspector, Rathfriland Urban District).

Suspected disease of the udder; cows isolated and milk stopped, 2469-43.

Compulsory application of the tuberculin test in doubtful case suggested, 2467.

Tuberculous animals should be slaughtered, 2468-60, 2461-6.

Cowkeepers should be licensed, 2466-2502.

Importance of water supply for cows when on grass, 2505-6.

Steps taken to destroy a cow with tuberculous udder, 2507-11.

Compensation for cow slaughtered as to amount payable, 2512-7, 2547-9.

No power by local authority to interfere with reactions, 2523-30.

Liability of tuberculous cow to give tubercular milk, 2530-6.

Cleanliness of milkers, 2530-74.

Hereditary tuberculous, 2575-9.

LABRE URBAN DISTRICT.

The standard of cleanliness in the district is fair, 6680-94; constant supervision necessary to keep up this standard, 9392.

Scarcity of the milk supply, 9387-9, 9394.

Price of milk, 9406; lack of appreciation of milk, 9404-6.

Cow slaughtered on the advice of a veterinary surgeon, and found to have a tuberculous udder; no veterinary inspector appointed for the district, 9420-24.

Inadequate fines are imposed, and are not deterrent, 9423-4.

LAWTHER, ALEX., J.P. (representing the Antrim Rural District Council).

The Antrim Rural Council have not enforced the Dairies Order re diseases among stock, 8850-22.

LAWTHER, ALEX., J.P.—continued.

There is no scarcity of milk in the district, 8853-37.

Price of milk wholesale, 8840-4.

The Dairies Order has not diminished the output of milk, 8847-8.

LAZINESS due to lack of nutrition, 3626.

LECTURES, DAIRY. That Department give, in urban districts, 5478-87.

LEGISLATION PROPOSED.

Definition of milk should include butter, skim, and separated milk, 141, 174-7.

For power to deal with milk suspected, but not declared to be infected, 236-236, 265-266, 354-356, 478-479, 621-625, 638-642, 8888-90, 9105-7, 9226-7, 9619-21.

See also "Widial Test."

Application of the Widial test to all persons engaged in handling milk, 229-230, 1162-1174.

Vendor of adulterated milk should be prosecuted, not the person giving a warranty, 194-196.

Tuberculosis should be scheduled so that compensation could be given for all tuberculous cattle ordered to be slaughtered, 316-319.

Need of protecting veterinary surgeons (a) ordering slaughter in a case of mastitis, which on post mortem is found not to be tubercular mastitis, 1238-44; (b) stopping milk supply from a diseased udder which is not tuberculous, 1362-6.

To prevent evasion of the law as to taking samples of milk "exposed" for sale, 2715-7, 2731-3, 2745-7, 2865-9, 2996, 3006, 3046.

For removal of the penalty limit for refusing to sell a sample and thus avoiding prosecution for adulteration, 2718-6.

For power to pay compensation for milk destroyed under suspicion, 3077-8.

Enacting legislation to prevent spread of disease by carriers needs modernizing, 6296-6308.

Typical carriers should be prohibited from handling milk, 6309-13.

Infectious Diseases Prevention Act, 1892.

Need of amendment of, 6226-7, 6262.

Dairymen should be required to keep list of customers and suppliers, 3086-8.

Proposed amendment of Section 16 of the Tuberculosis Prevention (L.) Act, 1908, to cause extermination of all tuberculous cows, 130, 8844-5.

That poor law valuation on new or improved byres be not raised for (any) five years, 6483, 9146-9.

Licensing. Proposals for licensing cowkeepers and milk-vendors and their premises. See "Licensing."

LESTRAUNE, SIR JOHN. Letter of resignation as member of the Commission, 2567.

LICENSING, instead of Registration, of cowkeepers and milk-vendors proposed.

Existing practice as to registration under the Dairies Order. See "Registration of Cowkeepers."

Licenses proposed for

Cowkeepers 2601-2, 4753-6, 5817-8, 6025-6, 7160-4, 7264-8, 8338-40, 8443, 8475-5, 11046-50, 11316-7.

Cowkeepers' premises, 7160, 7440-4, 11049.

Milk vendors, 644-8, 802-4, 3489-99, 4849, 6124-5, 8475-82, 6483-43, 7488-70, 7807-8, 9303, 10335-6.

In favour of licensing generally, 3706-8, 3786-8, 9128.

Proposed to license the dairymen but not the premises, 7475-6.

Proposed to license the dairymen and register his premises, 1204-13.

Proposed to license all milk-vendors in urban districts, but not in rural districts, 8669-72.

Annual licensing of cowbreds recommended, 9442.

Costs to licensing, 4566-3, 6008-9, 8264-12.

Conditions of grant of license, 1233-15.

Licensee should be withdrawn after a certain number of convictions, 6135.

Advantages of licensing, as compared with registration, 12-15, 171, 178-82, 1266-3, 6178, 6304-8.

Unsuitable sites could be prohibited, 1270-2.

Licensing would benefit the trade, 3234-9, 3786.

LICKENSING—continued.

- The method of disposing of human excreta on premises should be a consideration, 442-25.
The licensing authority should be the Department of Agriculture or County Council, 645; not in all cases the local authority, 806.
Licensing of grazing land for dairy cows desirable re water supply, 2772, 2788-90.
Licensing dairy-keepers in New York, conditions of, 6334.

LIMERICK.

- County labourers' scheme for purchase of Kerry cows, 3373-8.
County Committee's resolution for subsidy for winter milk, 3711.

LIPPOIDS in milk, 1618.

LISTOWEL RURAL DISTRICT COUNCIL.

- Resolution re milk supply, 3879.

LOANS.

- Loans are made by Board of Works for erection and improvement of cowsheds and creameries, 1741-2.
Increased number of applications for, since issue of Dairies Order of 1908, 1728-30, 1791-4.
Conditions of loan are that the requirements of the Dairies Order are observed, 1737-40.
Minimum loan granted to tenants is £35, to owners, £50, 1750.
Provision of proper means of storing milk suggested as a condition of making loan for cowshed, 3345-49, 1873-5, 1923-4, 1931-3.
For purchase of cows, proposed, 2320-4, 9696.
Small loans should be made to put byres in order, 8123-4, 8165-61, 8260-6, 8782-4, 9649-51.
Made by Department to small farmers to purchase premium bulls, 5418.
For purchase of modern shearing utensils. Suggestion that County Councils make loans, 3891-4.

LOUGH, MISS MARTHA (Rillabanda, Co. Cavan).

- Scarcity of milk in winter, 4415-28, 4503-35, 4527-8, 4544.
Scarcity of agricultural labour, 4429-32.
Regular employees get milk as part wages, 4438-9, 4508-4.
Separated milk; result of feeding calves on, 4440-60, 4461-72; value of, as a food for human beings, 4511-6.
Milk records; value of, 4461-60, 4577-80.
Value of winter milk under best circumstances, 4472-83, 4532-4.
Killeshandra creamery and its 14 auxiliaries keep open in winter, 4481-90.
Creameries do not sell new milk; farmers object, 4497-4502, 4535-49.
Lauded use of porridge among labourers, 4518-24.
Cowsheds Order; need of enforcement of, 4544-8.

LUMSDEN, DR. JOHN (Physician to Mater's Hospital and Chief Medical Officer to Guinness's Brewery, Dublin).

- Establishment by the W. N. H. A. of the Sistic Road Milk Depot, Dublin, to supply pasteurised and homogenised milk, 5059-62.
Satisfactory results from use of the milk, 4968, 5067-8; price of the milk, 5088-93.
Other places where homogenised and sterilised milk is prepared, 4962-74.
Is in favour of pasteurised milk as the result of observation, 4974-81, 5075; provided that clean milk from healthy cows cannot be obtained, 4982-3.
In favour of applying the Widal test to persons handling milk, 4984-6.
Infectious maladies caused by unclean or impure milk, 4990-3, 5077-80.
Value of skim milk as a food, 4994-7, 5014-20.
Dietetic value of condensed milk, 4996.
Use of antibiotics, 4999-5003.
The Sistic Road, and other similar depots are not commercial undertakings, 5003-7, 5064-7.
The long-tube bottle should be made illegal, 5033.
Bottled milk supplied to Guinness's employees at 8½d. a quart, 5043-54.
Mother's milk is the best for an infant, 5068-74.
Educational work of the Sistic Road Depot, 5068.

M.

- McBRIDE, JAMES. (Dairy Inspector, Belfast).
Compliance with Dairies Order is endorsed in Belfast, 6642-56, 6680-3.
Constant supervision necessary to keep up the standard of cleanliness, 6684-72.
Cowkeepers who have gone out of the business because of the Order, 6681-7.
Milk of suspected cow not allowed to be sold, 6677-81.
Duty milk sent in from country, the difficulty of dealing with, 6690-6706, 6711-3.
Inspects cows when on pasture outside the city area, 6694-6.
Has no legal right to inspect byres outside the city area, 6715.
But makes inspections, 1644, 6714-35. Reports of cases of defective byres, 6728-33.
Increasing difficulty of making inspections, 6734-5.

McCONNELL, H., M.B.C.V.S. (Veterinary Inspector to the Armagh County Council, and the Armagh Urban and Rural Districts).

- All the milk suppliers to creameries are not registered, 10985-8; and the creameries do not avoid the authorities, 10989-91.
The Dairies Order should apply to home butter makers, 30005-6.
All cows in the district were at one time tuberculin-tested, 10997-11003, 11100-11.
And the reactions were sold out of the district, 11004-6.
These reactions were not necessarily giving tubercular milk, 11364-8.
Central administration of the Order would be more efficient than local administration, 11007-11.
The milk-producing qualities of cows have deteriorated lately, 11012-4.
Due to breeding from premium bulls, which are housed too much to have healthy offspring, 11015-20.
Power to order compulsory slaughter of cow with tubercular udder, 11020-41.
Has always found the tuberculin test reliable, 11042-8.
Is in favour of licensing dairykeepers and their premises, 11049-55.
As to enforcement of the Order is the district, 11054-63, 11120-6.
Outbreak of epidemic disease traced to milk in 1905, 11062-9.
No scarcity of milk in County Armagh, 11078-81, 11144.
Has no objection to Belfast City sending professional men to inquire into the conditions of milk production in County Armagh, 11083-6, 11127-9.
There is no uniform code of rules among veterinary inspectors as to administering the Order, 11123-26.
And it might be hard to ensure uniformity, 11118-26.

McCONVILLE, H. J., J.P. (Chairman of the Newry Urban District Council).

- So far as there is difficulty in procuring milk in Newry it is due to lack of cows, 10327-8, 10350-4.
The Dairies Order has caused several milk vendors to give up business, 10329-34; also the increased price of feeding stuffs, 10625-9.

McDERMOTT, JOHN (Manager and Secretary of the Whitecross Co-operative Agricultural and Dairy Society, Limited, County Armagh).

- "A milk cow Insurance Scheme."
Cows which gave poor quantity and quality of milk won first and second prizes in the Dairy Class at Newry Show, 10693, 10694-92.
The best milking cows are sold out of the country or killed at the end of their milking season, 10992.
Propounds scheme of insurance for dairy cows, designed to—
(1) Enable the farmer, at a cheap rate, against loss on death of cows.
(2) Encourage a larger and better milk supply.
(3) Increase the interest of the farmer in the cowkeeper.
(4) Enable the cowkeeper to meet on a par with milk supply.
(5) Remove rivalry and friction among neighbouring creameries, 10692-3, 10700-72.

McDERMOTT, JOHN—continued.

- The scheme is in operation, 10750-2.
Explanation of the financial side of the scheme, 10822-9.
The Whiteside creamery sends milk to Belfast, 10704-9; and is willing to sell it reted when asked, 10731-9, 10733-9, 10781-8.
The creamery is not a cause of scarcity of milk for domestic use locally, 10739-95.
Price paid for milk at the creamery, 10710-6.
Influence of the food supply to cows on quality of the milk, 10717-24.
The Dairies Order is turning creamery suppliers into home butter-makers, 10738.
The Order should apply to all cowkeepers, 10729-30, 10825-9.
Calves fed on separated milk fetch good prices, 10739-42.
A constant butter trade means better prices, 10743-5.
Complaint that railway companies injure the milk cans, 10758-9.
Attributes the decreased butter export to decreasing milk yield of cows, 10808-16.

McEVoy, ARTHUR, J.P. (Home butter maker, Jerrypassag).

- Does not think that the pension bulls have injuriously affected the milk production of cows, 11779-84.
Has a good herd of milking shorthorns, 11781-72.
Labourers get milk from the farmer for whom they work regularly, 11802-21; not otherwise, 11814, 11823.

McGRAN, JAMES H. (Dairy Inspector, South Dublin Rural District).

- Enforcement of the Dairies Order in South Dublin Rural District, 4281-99; and consequent improved conditions for producing milk, 4293.
Thinks licensing dairymen would restrict the sale of milk, 4930-3.
Discontinuation of some farmers to sell milk retail, 4934-44.
Goats destructive to hedges and fences, 5013.
Complaints of outside authorities as to milk produced within the South Dublin District, 4930-35.
Complaint that lack of uniform enforcement of the Order means unequal trade competition, 4936-40.
Remunerative price for milk, 4941-3, a quart, 4941-3.
Absence of palpably tuberculous cows in the district, 4944-8.
Cows sent to grass in summer from adjoining districts are not under supervision, 4949-52; habits of the milkers, 4950-2.
The value of milk as a food is not appreciated by labourers, 4953-9, 4967.

McWEESEY, PROFESSOR E. J., M.A., M.D., D.Ph., F.R.C.P.I. (Professor of Pathology, University College, Dublin).

- Has made special study of Bacteriology, 339.
Importance of milk as an article of food, 363.
Inferiority of condensed to fresh milk as a food, 369.
Milk a favourable medium for the increase of bacterial growth, 370-373.
Infected milk as a cause of typhoid, tuberculosis, and infantile diarrhoea, 374, 378, 486; of diphtheria doubtful, 375-377, 485-6; of scarlatina doubtful, 487.
Reference to typhoid outbreak at Kilworth camp, 379-380; at Clontarf, 480-482.
Typhoid carriers, existence of, 381; number of, 383-388; consequences of these conditions, 407-409; they infect food, 410; and water used for washing millions' hands, 412-413.
The Widal test should be applied to all persons handling milk, 385, 394, even to persons who have not had typhoid fever, 384, one examination generally sufficient, 395, but not conclusive, 396.
Not necessary to apply test to persons feeding cattle, 426.
Persons may react to the test who have never had typhoid, 384, 392.

McWEESEY, PROFESSOR E. J.—continued.

- Test harmless and painless, 391; should be carried out by a skilled bacteriologist, 396-398, 401; possibility of doing so, 399-400, 402.
Hesitation to test three months after recovery from typhoid would raise suspicion that patient was a carrier, 392.
"Once a carrier, probably always a carrier," 396.
Cattle not capable of being infected with typhoid germs, 414, 443.
Necessity of cleanliness by persons handling milk, 393, 448-450.
Use of milking machines as a means of securing clean production, 406.
Flux as a source of infection of milk, 416-421; and consequent need of covering milks, 419.
Manure heaps, danger of, 422-424, 428-472, 477.
Methods of disposal of human excreta require careful attention, 423-433.
Value of bacteriological examination of milk for detecting typhoid bacilli, 434.
The reliable bacteriological test is biological, 301; not macroscopical, 308.
Inspection of dairies, recommends use of forms for reports to secure uniformity, 485-440.
Pasteurization, destruction of typhoid bacilli by, 441-443; temperature required, 448-450.
Temperature required to destroy tubercle bacilli, 490-497.
Effect of pasteurization on nutritive properties of milk, 434-454.
Lability of pasteurized milk to putrefaction, 454-458.
Separated milk from creameries should be pasteurized, 494.
Lack of uniform method of, 428.
Desirability of keeping milk at low temperature to prevent multiplication of bacteria, 444-447.
Infection spread by separated milk from creameries, 483.
Tuberculous Cattle. Cows with tuberculous udders see the chief danger to public health, 501.
Appropriate number of, 503-504.
Should be wooded out, 502-504, 507, 510-512; and compensation given, 508.
A tuberculous cow is a source of infection to the herd, 515.
Milk direct from the cow may contain tubercle bacilli, 498-499, 512.
Comparative danger of milk of reacting cows which are not obviously tuberculous, 541-544.
Would encourage removal of all reacting cows 546-577, 522, to arrest spread of disease, 549-550.
Tuberculous Milk. Samples of city milk should be examined by bacteriologists for tubercle bacilli, 506, 579.
Owner of tuberculous cow selling milk after warning should be punished, 556.
Calves infected by tuberculous milk, 514.
Public Health Authority should have power to inspect cattle and dairies outside its jurisdiction, 535, 573, 584-585.
Action taken by English and Scotch Public Health Committees to ensure healthy milk supply, 571-574, 585-596.
Dublin should have similar powers, 575-577.
Tuberculous test. Public opinion not ripe for general application of, 516.
Reliability of test, 518-519.
Simplicity of test, 523-525.
Purchase of cows subject to test, 556-563.
Proportion of cows which react, 566-567.
Isolation of reacting cattle, 568-569.
Inferiority of human beings by bovine bacilli, 518-546.
Proportion of people affected by tuberculosis, 556; causes of recovery, 545, 554.
Flesh of reacting cows, apparently healthy, fit for human consumption, 570.
Superiority of city milk to country milk, and causes, 587-590.

MAGISTRATES. Culpability of, who impose inadequate penalties for frauds re food supply, 5479.

MASON, PROFESSOR FALKNER C., M.B.C.V.S., Dairy Inspector, Rathdown Union, and Lecturer on Veterinary Hygiene in Dublin University, and under the Department of Agriculture.)

Good cessant management means increased milk yield (Co. Tyrone), 719-722, 725, 730.

Milk not used for household purposes—due to ignorance, 724-725, 733-4.

Price, 4½d. a gallon in summer, 5½d. a gallon in winter, 726.

Tillage essential to winter dairying, 742; furnishes labour and besides disease from the stock, 742, 822-825, 838-840.

Insistence of hygienic cowshed, 747.

Neglect of hygienic precautions causes loss of stock, 747, 758-766; enormous loss to the country from white scour, 772-773; white scour, where prevalent, 773, 803-807.

'The richer the land the lazier the people, and the worse the farming,' 748.

Contagious abortion losses by, 763-768, 877-884; infection of land by, 894-6; precautions to prevent spread of disease by *proteus* bulle, 897-902; superstitious remedies for, 903-906.

Decreased milk supply due to abortion in cattle, 880-884.

Dirty milk sent to cessaries, 769-770.

Improving conditions for storing milk in farmhouses, 775-780; partly due to the cessaries, 781-789.

Separated milk from the cessaries as a cause of disease, 782-786.

Efficient inspection of cessaries necessary, 787-790.

Existence of cessaries advantageous as regards milk supply, 792.

Not aware of difficulty of labourers in getting milk, 793-796.

Working of Dairies Order in Rathdown Union, 799, 800, 809-810.

Favours licensing, in lieu of registering, dairymen, 802-806.

Inspection of unqualified by inspectors not efficient, 817-819.

Effect of cattle trade adverse to the dairy trade, 820-830; considers dairying more valuable than raising calves, 835-836.

Exaltation and disposal of tuberculous cattle, 837-839.

Compensation for animal completely slaughtered, 840-845.

Suggests that Dairies Order be worked by officers responsible to a central authority, to ensure independent inspection, 844-845.

Use of the tuberculin test—to separate the sound from the unsound, 907-910.

Disposal of cattle resulting to test, 911-934.

Habits of milkers in the country in summer, 932-934.

Inspection of city cattle while in the country, 940-943.

Trans-borne milk—sanitary conditions, 944-947.

First of tuberculous cows, fitness of, for human food, 950-956, 959-961.

MANURE HEAPS. Danger of, in proximity to milk, 392-501, 423-35, 436-77.

MANURE PIT. Board of Works' condition on issue of loan that pit is 90ft. from cowshed, 1817-9, 1828-34.

Board of Works do not provide model plans of, 1835-6.

MAXWELL, JOHN (Dairy Inspector, Larne Urban District).

Scarcity of the milk supply of Larne, 9297-8, 9294; and conditions prevailing in the Larne Rural District, 9295-9296.

The standard of the cleanliness in the district is fair, 9299-94; constant supervision necessary to keep up the standard, 9302.

Price of milk, 9693; want of appreciation of milk, 9694-8.

Case of a cow slaughtered on the advice of a veterinary surgeon and found to have a tuberculous udder; no veterinary inspector appointed for the district, 9699-9724.

MAXWELL, JOHN—continued

Appointment of whole-time veterinary inspectors for the county desirable, 9630-5.

Propose that compensation be given for tuberculous cows slaughtered during first three years after promulgation of the Dairies Order; after that promote for having possession of a recognisably tuberculous cow, 9636-49.

Suggests the annual licensing of cowsheds, 9642.

Possible expansion of the increased number of tuberculous cows slaughtered in Belfast, 9643-64.

Inspectors under the Order should have power to prosecute without reference to the Sanitary Authority, 9654-61.

Indemnity fines are imposed and are not deterrent, 9662-4.

MAYO, THE COUNTESS OF.

Milk depot established in Ness by the W.N.H.A., 4923, to relieve the scarcity among poor people, 4942-52.

Price charged for milk, 4858, 4986-7.

Gratuitous distribution in necessitous cases, 4856-7.

Sanitary results, 4935.

The scarcity of milk in Ness district is due chiefly to lack of co-operation, 4938-64; but partly to the operation of the Dairies Order, 4966-72, 4960.

Management, working, and expenses of the depot described, 4974-83, 4995, 4987-4997, 4986-91.

Carlisle also has a similar milk depot, 4984-6.

The Ness depot might be a model for other towns similarly situated, 4998-12; but is at present in the experimental stage, 4992-5.

MILK SUPPLY. Flesh of tuberculous cows not necessarily unfit for human consumption, 219, 316-7, 999-70, 912-30, 948-51, 1475-96.

MEATH RURAL DISTRICT COUNCIL. Scarcity of milk in, in winter, 1009-109, 10122-8, 10126-7.

The Dairies Order is enforced in, 10115-20.

MEDICAL OFFICER OF HEALTH.

The M.O.H. has nothing to say to the Dairies Order, except in case of an outbreak of infectious disease, 11872.

Action taken by, on outbreak of disease, 624-627.

The exclusion of, in administering the Dairies Order is undesirable, 8973-5, 8967-91, 8964-6, 8975-89.

Should be notified on discovery of cow with tuberculous udder, 699-719; M.O.H. would report to a central authority, 711-713.

Inefficient powers of, under Infectious Diseases Prevention Act, 1892, re milk, 4326-7.

Appointment of County M.O.H. independent of private practice, recommended, 6715-28.

MELBOURNE. Arrangements for medical attendance on the poor, 5146-7.

Lady Talbot Milk Institute. See "Talbot, Lady."

MILK.

Scarcity of milk; alleged causes, and proposed remedies. See "Scarcity."

Condensed milk. See "Condensed milk."

Dried milk. See "Dried milk."

Goats' milk. See "Goats' milk."

Separated milk. See "Separated milk."

Bacteria in milk. See "Bacteria."

Value as a food. Importance of milk as a food, 363, 367, 4026.

Is an indispensable article of human diet, 1616.

Dietetic value of milk and its substitutes, 303-6.

Composition and nutritive value of milk, 1618.

No proper substitute for pure milk as a food for infants, 1628.

Mother's milk the ideal food for infants, 1629, 9006-74.

Power of mothers to nurse their infants depends on their own nutrition, 1626, 4108-15.

Milk substitutes should have their fat percentage marked on them, 4066.

Effect of high temperature on nutrient properties of milk, 451-4.

MILK—continued.

Slight relative quality in milk which is injured by heat remains in dried milk and buttermilk, but is injured by heating, 1618-20, 1626, 1708, 1716-7, 1718a.

See also "Pasteurization" and "Sterilization."
Not injured by steaming or autoclaving, 1988, 1999.

Whether milk is injured by heating is problematical, but probable, 4796-800.

Milk is not sufficiently appreciated as a food, 4064-5, 4933-9, 4607, 6905-39, 6549-51, 6585-91, 6944, 7332-6, 8034, 9225-32, 9407-17, 10660-2, 12061, 11216, 11384, 11888-96, 11638-34, 12000-12, 12019.

Its value should be taught in schools and by pamphlets, 8025-7.

Instruction to young mothers on the subject desirable, 11003-6.

Milk producers who do not keep enough milk for home use, 11142-3.

Cheapness of price the consumer's chief consideration, 8183, 8900-4, 9038, 4081, 4666.

People will not trouble to fetch it (Dublin), 3813, 3835, 4074.

Pure of milk.

Representative price of, 4841-3, 10640, 10668-70; depends on circumstances, 9276-8.

Good milk is worth 4d. a quart, 8113-4.

The cost of distribution (Belfast) is about 3d. a gallon, 7494-7.

At creameries, 756-8, 10710-6.

Wholesale price of country milk sent to Dublin, 3575-7, 3603-6.

Value of milk increased by creameries, 974.

Legal standard of pure milk, 277, 1073, 252.

As to reduction or alteration of, 1092, 1140-51.

Standard too low, 7740-54.

Danger of fixing a low standard, 3009.

Against reduction of legal standard below 5 p.p. for butter fat, 8048-53, 9118.

Variability of fat to vary, fatigues of solids, 1090, 1105, 4223-20.

Possibility of milk being pure though under the legal standard for butter fat, 276-299, 1073-1119, 5149, 5158-62, 9100-6, 9198-907.

The fatty content is affected by unequal periods of milking, 8709-10.

Difference between morning and evening milk, 252-7, 1085, 1094, 3301-5, 7011-3, 7598-31, 7576-80, 9246, 9300-1.

The average milk of a herd should be up to the standard, 1945, 6990, 8049, 9437-44, 9106, 9642-4.

Milk below legal standard should not be sold as milk, even if pure, 6961-5.

Milk which is kept just at legal standard, 6960-7.

There should be power to take a sample immediately after milking in doubtful cases, 6958-61.

Good and poor milk is sold at same price, 6956-61; effect on men selling the better quality, 7048.

Dublin milk.

Superior cleanliness of, compared with country milk, and ease, 1501, 366, 1070-3.

Superior cleanliness of city milk to country milk generally, 587-98, 8370.

Inspection and examination of, 102-7, 1207-12.

No examination made to discover disease germs, 1007, 1247, 1285-4.

Samples of town-borne milk should be sent for bacteriological examination, 506, 1244.

Regulations re milk in Dublin. See "Dublin."

Duty milk.

Suggested means of procuring sale of, 176, 172-4.

Supplied to creameries; will be checked by Butter Bill, 4434-50.

Rejected by one creamery may be accepted by another, 2387, 2906, 2636-8.

Action to be taken by Department to abolish, at creameries, 3384-97.

Effects made to eliminate, 3388.

No supervision over cows milked at markets and fairs, 4239-47, 4288-9, 3860-10, 7214-22, 9279-89, 10974-9.

MILK—continued.

Received in Dublin from the country, 150, 389.

Is not necessarily diseased milk, 990.

"Dut fever" caused by, 525.

Is a serious danger to health, 6330-5, 6418-21.

Cause of diarrhoea, 6408-10, and tuberculosis, by natural contamination, 6322-3, 6396.

Description of, 6691-92.

Proposed standard of class milk by fixing number of bacteria per c.c., 6333, 6389-91, 6793-5, 8365, 9427-35, 9711-3.

No power to prosecute for sending dirty country milk into city (Belfast), 6467-75, 6517-30, 6656-706, 6711-3, 6962-9.

Retailer of, should be responsible in case of prosecution, 7122, 7330-1, 7562.

Grading of milk, 2584-9.

Diseased milk.

Suspected, but not declared, to be infected. For power to deal with, 226-6, 354-5, 478-9, 629-30, 638-42.

Tubercular milk can be destroyed and cow slaughtered, 1948-51.

Treatment of milk from diseased udders not tubercular, 1361-9.

Milk suspected to be tubercular; treatment of, 4761-3.

Infection of milk of cow which reacts to the tuberculin test, 1154-60.

Milk of cows reacting to tuberculin test not obviously tuberculous; danger of, 519-546.

Milk of a suspected cow not allowed to be sold (Belfast), 6677-81.

Milk of tubercular cow sold after owner was warned—owner should be punished, 600.

Low temperature unfavorable to typhoid and tubercle bacilli, 444-7; temperature required to kill same, 441, 448, 450.

Cooling, compulsory, of milk at time of milking recommended, 6483, 6554-7.

Objection to chilled milk, 16460.

Milk does not attract disease germs, but is a medium favourable to their growth, 371-8.

Milk production.

Suggested means of increasing, 1021-22.

Milk yield of cows less now than 25 years ago; and causes. See "Cows" and "Bulls."

An increased supply created an enormously increased demand (Birn), 5169. Also see "Milk Records."

Winter milk.

Reorganization of production of, by department, 2659-61.

For subsidy for, 5711.

Value of, under best circumstances, 4473-82, 4523-4.

The season of calving as an influence on the yield of milk, 4508-8.

Financial results, 5500-31.

Process (Mr. Thomas Falls) for preserving milk freed from impurities and of uniform quality, 5890-8913, 8945, 8987.

Cost of plant, 8900, 8924-8, 8948-54.

The process is at present in the experimental stage, 8914-8, 8929-36, 8936-91.

Suggestion that the Department test the process, 8998, 8999.

The bottled milk could be stored and retailed like groceries, 3918-25, 5943.

Milk treated by the process cannot be used for butter-making or separating, 8989-93, 9081.

"Nursery milk"; sold at enhanced price, 8991.

"Cupped milk"; description of, 3236, 8943.

"Infants' milk" specially prepared in Copenhagen, 3006, 3006.

Certified and standardized milk likely to be too dear, 4265-7.

Milk of cows not reacting to the tuberculin test should have a higher commercial value, 547.

Bottled milk recommended, 7397-7792, 7793-3.

Municipal Milk Fund, Belfast, 6611-22. See "Belfast."

Milk yield; calculated, 2308-10.

Quantity and disposal of milk available, 3327-54.

Quantity and quality of milk of old cows, 1132-6.

Milk exported to England, 2487-96, 2514-5.

Concentration of milk production in few hands desirable, 327-9, 317-9.

MILK—continued.

- Orders re sale of milk; need of consolidating, 714.
 Regulations in U.S.A. re sale of milk and cream, 8434.
 Necessity of keeping milk covered, 416-22.
 Danger of infection of, by being kept, 444.
 Milk sold out of kitchens (Bathmans). Difficulty of getting samples, 2906.
 Storage of, in farmhouses. Improving conditions, 776-80; partly due to creameries, 781-2.
 Hygienic methods in handling milk suggested by Mr. J. B. Dunlop, 2982.
 Girdling of milk, 2984-9.
 Cleaning milk by centrifugal force is better than straining, 2990-3.
 Straining through a filter with the medium of cotton wool is the only effective strainer, 9352-6.
 Testing for sediment and fermentation, 2970-5.
 Effects to secure greater cleanliness depressed if they tend to lessen the present production, 8438-39, 8490.
 Persons should not be allowed to drink tubercular milk, to secure immunity against tubercle bacilli, 6884-94.
 Milk from small farms is not of poorer quality, 9499; but is sometimes mixed milk during winter months, 5009.
 Milk destroyed under suspicion. For power to pay compensation, 3077-8.
 Exposure of, for sale. Eviction of the law as to, 2713-7, 2751-3, 2765-7, 2985-9, 2996, 3000, 3049, 6911, 7002-5.
 Co-operative distribution of, by Dublin dairymen not probable, 8290-1.
 Suggestion that small consumers in same street be organised to obtain supplies from same milk cart, 7692-7, 9333-41.
 Sale of milk by one dairyman to another in case of shortage.
 Difficulty of preventing, 3232-3, 7022-31.
 Danger of, 8308-33, 9330-2.
 Can go to wholesale milk stores (Belfast), 9326-32, 9362-4, 9471.
 Railway rates for carriage of milk, 2567-9.
 Carriage of, in cold cars by railways, 1066-9.
 Provision of a milk shed at railway stations suggested, 7024-30.
 Lipids in milk, 1618.
 Milk vessels. Should not be left in shops, 8344-5.
 Use of dirty cloths under the lids of tubs, 944-7, 1306-11, 1836; and newspapers, 6771-8, 6781-9, 6964-5.
 Unsuitable milk vessels used, 7086-78.
 Use of suitable designs, 2193, 2437, 2990-3, 2949-57.
 Standardised milk cans desirable, 7937-50.
 Instruments designed for examination of milk shown as re cleanliness, 3016.
 MILK DEPOTS at Ness and Carlow. See "Ness" and "Carlow".

MILKERS.

- Habits of, in country in summer. Absence of inspection, 892-6, 1577-8, 3828-33, 6960-7, 8227-30.
 Lack of cleanliness, 7358.
 Urban Authority cannot supervise during summer, if outside the district, 8003-9.
 Supervision necessary to ensure cleanliness, 3738-50.
 Dry-handed milking by, 3690-74.

MILK FLOATS of suitable design should be used, 8384-5.

MILKING MACHINES.

- As an aid to cleanliness, 466.
 Fewer bacteria in machine, compared with hand-milked milk, 9709, 9806-43.

MILK MEASURES. The smallest standard measure as the half-pint, this makes the sale of half-pennyworths unprofitable and restricts the sale, 11792-8.

MILK PRODUCTS.

- Not covered by the Dairies Order, 1908, 45.
 See also "Dairies Order—Proposed Amendments."

MILK RECORDS.

- Associations keeping, 3897-9.
 Records kept at Albert Agricultural College, Glasnevin, 5433-43. Keeping of records advocated, 7433-5.
 Value of keeping, 4451-93, 4577-80, 5491, 8622-7, 9150-56, 11490-3.
 Examples of records kept, 5193-19.
 Herd of 40 cows which averages 700 to 800 gallons each in 12 months, 7429-38, 7592-6.
 Method of feeding, 7429-47.
 Records kept and light milkers eliminated, 10432-47, 10471-85, 10680-5, 11938-39.
 The dairy record is an index of the cow's condition, 12933-5.
 The keeping of, often falsifies the cowkeeper's opinion as to the best milkers, 8662-7, 11931.
 Cows not worth their food, 11490.
 Essential to establish the milk pedigree of bull calves, 7277-81.
 Need of keeping, to improve breed of milchers, 8600, 9968-95, 9997-1005, 9197-10, 9115-8.
 Tests should be made to ascertain percentage of butter fat, 3482-90.
 There is trouble, rather than expense, involved in keeping, 9318-24, 9044.

MILK STORE. Suggestion that Board of Works make the provision of a proper store a condition of a loan for a cowshed, 1835-48, 1873-5, 1923-4, 1804-5.

MILK VENDORS.

- Vendor of milk under Dairies Order, 1906, defined, 59, 61, includes suppliers to creameries, 29.
 Position of farmer selling milk to his labourers, 21-33, 49-50, 118-124, 136-158.
 Milk vendors must keep register of sources of their milk supplies, 6129-31, 6723-3.
 Should keep a list of names and addresses of their customers, 1371-3.
 Sale of milk by one dairyman to another in case of shortage. Difficulty of preventing, 3232-3, 7022-31.
 Danger of, 8328-38, 9330-2.
 Can go to wholesale milk stores (Belfast), 9326-32, 9362-4, 9471.
 Vendor of adulterated milk should be prosecuted, irrespective of warranty, 194-196.
 The retailer of dirty milk should be responsible in case of prosecution, 7323, 7380-1, 7992.
 Should be licensed. See "Licensing".

MORROW, W. ROBERT (Farmer and dairyman in Newlands Rural district; represents the Belfast and District Wholesale and Retail Dairymen's Association).

- Increasing price of milk, 7376-84.
 Stock and premises are regularly inspected, 7887-90, and cleanliness insisted on, 7412-6.
 The Dairies Order is good for the trade, 7427-33.
 The objection in rural districts to the Belfast Inspector is that he is not a professional man, 7560-1; favours appointment of an inspector by a central body, 7342-5.
 Keeps cows only for one milking period as a rule, 7698-7400, 7406-12.
 Cows give smaller yield now than 25 years ago, 7490-4; due to the over-enrichment of beef at the expense of milk, 7495-8.
 Labourers get milk from the farmers for whom they work, 7422-8, 7498-7506.
 Herd of forty cows which averages 700 to 800 gallons each in 12 months, 7429-38, 7592-6; method of feeding, 7429-47.
 Suggests that the Department offer premiums and prizes for herds of milking steers, 7448-53.
 Advocates the keeping of milk records, 7463-5.
 The good calves are not slaughtered, Belfast district, 7456-9.
 Dairy farming is less profitable now than formerly, 7460-2.
 The Order has put some small men out of trade, but has not affected the milk supply, 7465-5.
 Alleged failure of the tuberculin test, 7466-71.
 Would license the dairymen, but not the premises, 7475-6.
 The average quality of Belfast milk must not be judged by the samples taken of it, 7482-9, 7597-9.

MORROW, W. ROBERT—continued.

The cost of distributing milk is about 3d. per gallon, 7494-7.
No difficulty in getting dairy workers, 7507-18.
Custom of selling milk among vendors in the street, 7522-31.

MOTHERS. Food for, nursing, 4108-15.

Instruction of, as to value of milk as a food, desirable, 11393-6.

MUNICIPAL DAIRY FARMS. See "Scarcity; remedies."

MUNICIPAL Milk Fund, Bellsh. See "Belshet."

N.

NAAS MILK DEPOT.

Established by the W.N.H.A., 4872; to relieve scarcity among poor people, 4892-9.
Price charged for milk, 4850, 4886-7.
Gratuitous distribution in accidental cases, 4856-7.
Satisfactory results, 4893.
Management, working, and expenses described, 4874-83, 4885, 4887-4907, 4936-51.
Possible model for other towns similarly situated, 4908-12; but is at present in the experimental stage, 4922-3.

NEALE, E. A. (Traffic Manager of the Great Southern and Western Railway).

No complaints have been received as to the means of carriage and handling of milk, 9942-3, 9947-8, 9975-8, 10081-90.

The Company have refrigerating vans for the carriage of butter, 9950, 9968-9.

The extra cost of ice deters persons from using them usually, 9951-9.

Refrigerating vans for carriage of milk have never been asked for, 9966-7.

But the Company would consider the expediency of providing them if necessary, 10048-50.

There is a special milk van on routes that carry milk, 10015-20.

Contamination in transit by rail, 10021-7, 9976-8.

Tampering with milk while in Company's charge unlikely, 10042-5.

Special rules for milk for manufacturing purposes in Limerick District, 9979-87.

The Company do not refuse to accept any cans because of their condition, 9923-75, 9936-7, 10006-9.

Dairy cans or milk have not been noticed by Company's employees, 9988-94, 9999-10,006.

The Company, as common carriers, are not liable to provide a place for the transfer of milk to carts, or for taking samples, 10030-41.

The Company would not object to receive milk in locked cans, 10033-5, 10060-9.

Difficulty of loading milk cans in two-tier waggons, 9944-5, 10067-80.

Quantity of milk carried over Company's system to Dublin, 10063-6.

Costs—freight for carriage of, 10061-7.

NEWRY.

So far as there is difficulty in procuring milk in, it is due to lack of means, 10297-8, 10356-4, 11310, 11376-80.

The irregular customer has difficulty in getting milk, 11149-52, 11173.

Children in, do not get enough milk, 10466-79, 11946-12004; health of the population suffers in consequence, 10034-8.

Newry milk is of poor quality, 10009, 10850-3, 10904-78; suggestion that the Borough Authority take steps to enrich it by adding the milk of Jersey cows, 10916-6, 10923.

There is great need of a milk depot, 11319, 11325-6; private enterprise preferable, 11340-3, 11386.

Falling short, the local authority should open a depot, 11319, 11382-3.

Suggestion that a general milk shop be placed in each ward, 11380.

NEWRY—continued.

Land near, of good quality, 10414-3, 10578-80, 11468.

Custom as to hiring labour near, 10955-64.

No difficulty in enforcing the Dairies Order in, 11945-50.

No prosecution for adulteration of milk in, for several years, 11960-9.

Labour conditions in Newry: the mothers work in the mills, there is scarcity of regular work for the men, and the children health suffers, 11153-68, 11198-312, 11335-8, 11349-50.

The out-of-work men in, are not suitable as cowmen, 10326.

Outbreak of typhoid fever in 1911: milk supply suspected as the cause, but case not proved, 11275-82, 11356-11.

Enforcement of the Dairies Order in, 11278-85, 11298-300, 11349-52.

The Urban Council sought power to send their inspector into a rural district which had not appointed a veterinary inspector, 11301-3.

Boilerwork, prosecutions for adulteration of, 11328-36.

The majority of children entering Newry hospital suffer from tubercular diseases, 12003, 12027; attributable to insufficient nourishment, 12004; the same is true of other patients, 12003-8.

Domestic economy classes in, 12023-3.

NEWRY AGRICULTURAL SHOW SOCIETY.

Cows which gave poor quantity and quality of milk won first and second prizes in the Dairy Class at Newry Show, 10402, 10446-52.

Encouragement of dairy cattle by: method of awarding prizes, 11411-24, 11482-9.

The Society propose to form cow-testing stations to check milk records, 11488-6, and to act as supervisor, 11560-72; the creameries to affiliate with the Society, 11578-84; the Society will be responsible to the Department, 11578-8.

Prizes given for goats, 11505-8.

NEWRY RURAL DISTRICT No. 2. Dairies Order enforced in, 10407-12, 10499, 10497-302.

Number of cowkeepers, 11486-8.

Scarcity of milk in Newry Rural District, 11494-501, 11628.

NEWTOWNARDS RURAL DISTRICT

Staff appointed to work the Dairies Order, 8301-7.

Circumstances in which the Council requested the application of the Bellsh and Beager local authorities to inspect their district, 9022-30, 9068.

The rural council resist such inspection on general grounds, 9051-5.

Where the Dairies Order is not enforced the Local Government Board should be appealed to, or the sale of milk from that district forbidden, 9065-6.

There is scarcity of milk in parts of the district, 9037-44, 9052-3.

Action taken locally to teach the value of milk as a food, 9045-9.

Tuberculosis is a notifiable disease in the district, 9060.

Death rate per thousand, 9041.

Sanitary precautions; disinfection, handling of milk forbidden, etc., 9067.

O.

O'DONOGHUE, DR. JOHN. (Medical Superintendent Officer of Health, North Dublin Rural District, and M.O.H. for Clonsilla).

Reports of veterinary and dairy inspectors under Dairies Order are not sent to the Medical Officer of Health, 338-500, 629-700.

Duties of veterinary inspectors, 602, 676-687.

Duties of dairy inspector, 602, 604-606.

Dairy inspector not required to hold sanitary certificate, 605-608.

Absence of effective administration in North Dublin District, notwithstanding appointment of officers, 604-617, 626-631, 682, 694-696.

O'DONOGHUE, JOHN—continued.

- Supervision of a central authority desirable, 660, 665-667, 700-714.
- Epidemics traceable to milk—(1) of scours in Glasnevin; (2) of typhoid in Clontarf; (3) of typhoid in Howth, 620-629.
- Action by Medical Officer of Health in tracing outbreaks of disease, 664-668.
- The Public Health Authority should have power to apply the Widal test to persons handling milk, 661-664; and to deal with milk suspected but not declared to be infected, 640-662.
- Municipalities should have power to inspect sources of their milk supply, 643-644.
- Suggests licensing, instead of registering, dairymen, 664-8.
- The licensing body should be the Department of Agriculture or the County Council, 643.
- Contamination arising from dirty milkers, 666-668.
- Poverty a cause of insufficient milk supply, 662-667.
- Scarcity of milk in Howth, 667-669, substitutes, 670-672.
- Disposal of tuberculous cattle, 678-686, 698-699.
- M.O.H. should be notified of discovery of a cow with tuberculous udder, 698-710; who would report to a central authority, 711-713.
- Consolidation of Orders re sale of milk suggested, 714.
- Cattle sent to grass from Dublin in summer are not under supervision, 715.

O'HARE, PETER. (Farmer, Mayobridge, Co. Down). There is no scarcity of milk in the district, 11832-33. Farmers supply their labourers with milk, 11830-40. There is no inspection under the Dairies Order in the district, 11837-32. But thinks there should be, 11833.

The sale of the best stock out of the country, and not the premium bulls, is responsible for the deterioration of the cows, 11835-36, 11834-7.

The half-bred bulls should be superseded by premium bulls, 11870-8.

O'NEILL, DR. CHARLES. (Medical Superintendent, Office of Health, Castlereagh Rural District). Improvement in dairies since the issue of the Dairies Order, but still room for improvement, 9570-82, 9580-6, 9124-7.

Outbreak of typhoid fever traceable to milk, 9063.

Inspection by Belfast Corporation not warranted as unreasonable, 9044-7, 9145-4.

The keeping of milk records is desirable as a means of improving the breed of good milkers, 9088-92, 9067-9109, 9107-10, 9113-8.

The milking qualities of cows have deteriorated owing to the use of bulls of a non-milking strain, 9111-4.

Pure milk which is below the legal standard for butter fat, 9105-6.

Inadequate fines in prosecutions, 9120-20.

Would limit the application of the Widal test to suspicious cases, 9122-7.

OUTBREAKS OF DISEASE attributable to milk. See "Disease, outbreaks of."

OVERSTOCKING of cows at fairs; cruelty to animals, and dirty vessels used for milk, 4230-47.

P.

PASTEURISATION OF MILK.

For—

- Of new milk, recommended by Professor McWenney, 145; by Dr. Larnaden, 4974-83.
- By individual dairies (Dublin), 1070.
- Of separated milk by creameries, as to 145, 1039; advocated, 484, 9435, 9432-3.
- No difficulty in pasteurising separated milk before being returned to farmer, 1034.
- Number of creameries pasteurising, 2431-4, 2449-53.
- Universal pasteurisation desirable, 2435, 2432-3.
- Is a check against stale milk, 2436, 2440-4, though not against dirty milk, 2437-31.
- Does not remove dirt, 1074.
- Compulsion recommended, 2429, 2548-50.
- Compulsory in Denmark, 2430-8.
- One effect would be the disappearance of stale milk, 2430-4.

PASTEURISATION OF MILK—continued.

- As a safeguard against typhoid germs, 448-443, 449-450; and diphtheria generally, 2438.
- Temperature required to kill typhoid germs, 443; to kill tuberculous germs, 489-491, 2579-80.
- Pasteurisation temperature required for small quantities, 494-497.
- Flash and holder processes described, 9778-9.
- Temperature and period for pasteurising in creamery, 1645, 2443-6, 2439-40.
- Uniform adoption of an effective method of, desirable, 493.
- Pasteurisation in bottles better than in bulk, 4091.
- Cost involved by, 2454-5, and footnote, p. 80, 2497-9.
- Cost (Belfast), 3365-8.
- Greater digestibility of pasteurised milk, 2520.
- Costs, 1036.
- Addition of fruit juice to pasteurised milk advisable, 454, 5006, 5080.
- Pasteurisation necessary under present conditions, 1039, 2575, but raw pure milk is preferable, 1650, 4062-3.
- Establishment of Slieve Road depot, Dublin, for supply of pasteurised and humanised milk, 4963-5.
- Sanitary results from use of milk, 4963, 5067-8.
- Price of milk, 3038-43.
- Other places where humanised and sterilised milk is prepared, 4963-74.
- Is not a commercial undertaking, 5021-7, 5034-7.
- Educational work of, 5088.
- Not popular in Belfast at first, 8412-13, 9079; now no difficulty, 9078, 9475-9.
- Sale of pasteurised milk in Belfast, 9473, 9490-9492, 9475-28.
- The price is the same or less than for unpasteurised milk, 9451-3, 9450-3.
- Does not affect the quality of butter, 2435, 2436-24.
- Against—
- General pasteurisation of milk not necessary, 438.
- Should be avoided if possible, 2817-8, 2856-63.
- Not approved of by the Copenhagen Milk Supply Co., 3993.
- Cooling milk preferable to, 4090.
- Readers milk unfit food for sucklings, 6943-4, 6970-8.
- Special dangers of pasteurised milk to contamination, 453-453.
- A cause for scurvy rickets, 432.
- Costs, 4990, 4978-9, 5081.
- A cause of infantile diarrhoea, 439.
- Centre, 5087-8.
- Nutritive properties of milk injured by, 451, 1648, 1628-9, 1716-7, 1715a, 6758-61.
- Centre, 4975-7, 8412-3, 9038.
- Objections to pasteurisation of milk; injures the milk, stimulates spores, encourages the production of dirty milk, and is liable to putrefy, 9748-70; but pasteurisation of milk is desirable for infants where there is doubt as to the cleanliness of the milk, 9758-61, 9764-6, 9020-3.
- Fine of sending objectionable usually, 488-494.
- Danger of earthenware when pasteurisation is done on a large scale, 3029.
- Controversy in commercial pasteurisation, 9768-70.
- PENALTIES for adulteration of milk and breaches of the Dairies Order—see "Fines."
- PERFECT, COMMANDER R.M. (Engaged in the dairying business, Warrington). Value of the shorthorn and Jersey cross for milk and beef, 18891-904.
- Milk is scarce in the district, but there is not a lack of it, 11890-90, 11903-17, 11923-7.
- Keeps milk records of each cow; results, 11928-33.
- PHILANTHROPY not sufficient for continuous work, 2294-6, 3538-58.
- PIGS should be excluded from dairy-yards, 3067-3106, 7294-30.
- PINER, A. may be eradicated from causes other than tuberculous, 5090, 5090.
- PLEURO-PNEUMONIA ACT, 1894. The Dublin custom of killing cow after giving season's milk dates from, 1438-16.

FOLLOCK, F. W. (Clerk of the Lagan Urban District Council).
 Inadequate fines imposed for adulteration of milk, 8939.
 And cases dismissed where milk was well under the legal standard for butter fat, 8990-73.
 All the prosecutions were in respect of milk produced outside the urban area, 8974.
 Considers that an urban authority should have power to send a qualified man into outside areas to ascertain conditions under which milk is produced, 8975-81.
 Practice as to appointment of County Analyst, and Food and Drugs Inspectors, 8995.

FORBIDGE, use of among labourers, 4518-24.
 Not in value to milk as a food, 6409-7.

PORTER, ROBERT J. (Solicitor and landowner, Belfast district).
 Suggests that the poor law valuation be not raised on improvements of byres and farmhouses for, say, five years, 9145-6.
 Farmhouses should not be used as lodgings unless in a proper sanitary state, 9146.

PRESERVATIVES, use of in milk, 2355-8, 3895-6, 6920-3, 7068A-7061.
 Injurious, 4423.

R.

RAILWAYS.

Re milk traffic. See "Great Southern and Western Railway."
 Rates of carriage for milk, 3507-9.
 Use of refrigerating cars desirable, 447, 1066-8.
 Railway stations should have special milk depots, 6077-9, 7024-30, 8884.
 There is sometimes reason to complain of conditions of carriage, 9283.
 Complain that Railway Companies injure milk cans, 10737-9.
 Sanitary conditions of train-horse milk, 944-7, 1530.
 No one responsible for inspection of train-horse milk, 15662.
 Suggestion that railway employees should be made responsible for the condition of milk cans carried, 10005-9.

BATHEDOWN UNION. Dairies Order enforced in, 750, 899, 909-10.

BATHMINER URBAN DISTRICT. Enforcement of Dairies Order in, 3093, 7106-15.
 Sanitary inspection of milk in, 7964-5, 7996, 3011.

REACTORS. See "Tuberculin Test."

RED LINCOLNS. Good milking progeny of a Red Lincoln bull, 4497, 4577-8.
 As milkers not better than Shorthorns, and are slower, 5409-14.
 Not good from the milking point of view, 33663-6.

REGISTRATION OF COWKEEPERS AND MILK VENDORS.

Registration of, with local authority compulsory under the Dairies Order of 1908, 10.
 Its object, 11.
 Registration compulsory on the local authority, whether the persons of the dairymen or cowkeeper are suitable or not, 1407, 3694, 5817, 6448-9, 6673-4.
 Difference between registration and licensing, 13-15, 178-182.
 What registration involves, 15-17.
 Enforcement of registration of milk-vendors, 51-61.
 Suppliers of milk to creameries in Co. Armagh who are not registered, 10886-91.
 Licensing instead of registration proposed. See "Licensing."

REGULATIONS to ensure cleanliness in connection with milking. See "Dairies."

RICKETS. References to, 4030, 4090, 4090, 4106, 4124, 979-83, 5081-4.

RESTAURANTS selling milk should come under the Dairies Order, 3190-4, 3203-5.

REYNOLDS, HENRY L. (Food and Drugs Inspector, and Sanitary Officer, Belfast).

Takes samples of milk exposed for sale in Belfast, 6806-7; for bacteriological examination, if dirty, 6808-11; but ordinarily to check adulteration, 6902-11.

Method of taking samples, 6898-9; variation in morning and evening milk, 7041-2.

Form of analyst's certificate: "addition of water" or "abstraction of fat," 7068-30.

The Corporation do not prosecute unless fat is below 2.5 p.c., because magistrates are unwilling to convict, 7042-55, 9009.

Thinks the fines imposed in milk prosecutions are adequate, 6912-9.

Fear of the vendor of publicity, 6914.

Advocates supervision of locally appointed inspectors by a central authority, 6921-4.

Is in favour of licensing cowkeepers, 6925-8.

The fat in milk sometimes falls below the legal standard, but not fat and non-fat solids, 6930-30.

Milk with butter fat below the standard should not be sold, 6931-5.

Milk which is kept just at the legal standard, 6936-7; desires power to take samples of milk immediately after milking, in doubtful cases, 6938-41.

Quantity of milk consumed in artisan's household, Belfast, 6942-4.

Condensed skim milk used, 6944-55, 7032-8.

Good and poor milk is sold at same price, 6956-41; effect on men selling better quality, 7048.

There is power to prosecute for adulteration, but not for dirty milk, 6963-9.

Description of dirty milk, 6969-93.

Price of milk in Belfast, 6999, 7099, of separated milk, 6973-82, 7013-22.

Restrictions on sale of milk in butchers' shops, 7000-1.

Suggests provision of a milk shed at railway stations, 7024-30.

Standardized milk cans desirable, 7037-65.

Unsuitable milk vessels, 7046-75.

RICHARDSON, J. D., M.R.C.V.S. (Veterinary Inspector, North and South Dublin Rural Districts).

Number of dairies and cows in his districts, 4674-85.
 Treatment of cows suspected to be tuberculous, 4686-90.

No power in the county to award compensation for tuberculous cows slaughtered, if not suffering from tuberculosis of the udder, 4700-4704.

Proportion of tuberculous cows which suffer from tuberculosis of the udder, 4705-34.

In favour of licensing dairy-keepers, 4733-6.

A better class of cows was exhibited in the Dublin market ten years ago, 4740-7.

Cows sent into the district for summer grass are not under inspection, 4748-52.

Does not believe that tuberculous as a cow can be cured, 4759-71.

Cases of tuberculin-tested herds in South Dublin, 4773-4807.

Cows can be bought in Dublin market subject to passing the tuberculin test, 4785.

RICKARD, MISS MARGARET (Sanitary Sub-Officer, North Dublin Rural District).

Milk not procurable in North Dublin district, 3603-6, 3614-7; because the demand is intermittent, 3618-26.

Farmers refuse to sell milk to avoid scoring under the Dairies Order, 3648-58.

ROSS, CHARLES (Milk Vendor in Belfast, representing the Belfast and District Wholesale and Retail Dairymen's Association).

The inspection in Belfast as carried out is reasonable, 7544-7.

Too little milk is consumed, 7548-57.

ROSS, CHARLES—continued.

The milking quality of cows is decreasing, 7365-7.
 Approves of becoming milk vendors, 7366-70.
 Increasing difficulty of getting dairy workers, 7371-5.
 The samples of milk taken are not a fair indication of the ordinary standard of milk supplied in Belfast, 7381-4, 7411-3.
 Good class of cow kept in Belfast, and good results obtained, 7382-7602.
 Advocates the inspection of outside dairies, 7613-4; to obviate unfair competition between town and country milk producers, 7615-7, 7347.

ROSS, JOSEPH, J.P. (Milk producer and purveyor, Co. Dublin).

Difficulty of carrying on the dairy trade in Dublin, 5266-8, 5269-62.
 Supervision under the Dairies Order is efficiently carried out, 3279-3, 5203-8.
 Cows not inspected when on grass, 5204.
 No objection to the Dairies Order, 5203-8.
 Has sold cows subject to their passing the tuberculosis test, 5209-5304, 5316-25.
 The labourer's independence of the farmer is a cause of the labourer not getting milk, 5320.
 As to carrying pig-feed in empty milk vessels, 5327-8.
 Is opposed to local authorities running dairies, 5345-7.
 The small farmer is better able to produce milk profitably than large companies, 5346-53.

ROSSES DAIRY, BIRN, LOED. See "Birn."

RUSSELL, RT. HON. T. W., M.P. (Vice-President of the Department of Agriculture, Ireland).

Security.

Difficulty of the labouring class in procuring milk, 3478.

Two sample rural cases, 3493-8.

Proposal of County Limerick labourers that money given by the Department for savings prize scheme be devoted to purchase of Kerry cows, 3473-8.

Proposal of County Kerry labourers that Department grants for agricultural purposes be given as loans for purchase of milk cows, 3479-40.
 Feasibility of the two proposals discussed, 3494-3495.

Two urban cases of security: Tallamore and Atherry, 3499-11, 3505-3600.

How the milk problem was dealt with in Atherry, 3492-99, 3491-3.

Crescent as milk shops, 3423.

Causes.

Security of milk is due to—

Experience of butter; disinclination of producer to sell retail;

Labourer's independence of the farmer, 3424.

Dirty milk supplied to creameries, 3424; will be checked by the Butter Bill, 3426-30.

The Department of Agriculture is not concerned with health or disease, 3431-2.

Remedies.

Urban authorities could enter on the dairy business or open milk depots, 3435-43.

In rural districts Father's Barry plan of commonages could be tried where practicable, 3444-7.

Difficulty of establishing a rural district supply, 3448-51.

Goats as a remedy, 3451-59, 3494-6.

As to farmer supplying milk to labourers under contract with Rural District Council, 3471-3, 3525-2.

Objection to State contributions to cheapen food, 3423-6.

Assistance of philanthropic agencies desirable, but not sufficient in itself, 3528-68.

General.

Separated milk. Professor Thompson's views as to value of, as a food, 3450.

Lord Ashdown's views as to value of, for feeding cattle, 3438-4, 3466-70.

Units as food for children, and for infants and cattle without the addition of fat, 3453.

Non-application of Dairies Order to home butter makers, 3477-8.

Inadequate penalties for frauds in connection with food supplies, 3479.

Culpability of magistrates who impose inadequate penalties, 3479.

Experimented a sitting punishment, 3479-80.

Inspection of creameries by the Department, 3481-3.

Licensing of milk-shops preferable to registration, 3487-90.

Appointment of veterinary inspectors by a central authority independent of local influence, 3497-500.

Non-compliance with the Dairies Order in respect of out-buildings provided by the Congested Districts Board, 3493-36.

Decreasing butter exports, and reasons therefor; quantity and disposal of milk available, 3497-54.

As to the elimination of the clinically diseased cow, 3497-61.

S.

SAMPLES.

Taking of mixed, of morning and evening's milk, 1111-22.

Taking of samples of milk in towns for bacteriological examination, 546, 579.

Samples taken in Belfast for analysis and bacteriological examination, 6860-6911.

Method of taking samples, 6925-9.

The average quality of Belfast milk must not be judged by the samples taken of it, 7482-9, 7387-9, 7361-4, 7613-2, 8488-9.

SANATORIUM. Dairies.

Cows supplying milk to, not tested, 5606-9.

SCARCITY OF MILK. ALLEGED CAUSES AND PROPOSED REMEDIES.

SCARCITY OF MILK.

Security general, December to March, 5332.

Areas of security, 5333.

Killeshanda district, 4413-28, 4506-10, 4544;

Nias district, 4860-3; Tallamore, 3409-10;

Bellingsham district, 5628-41, 5630-8, 5630;

hilly districts of Connemara Down and Antrim

in winter, 3694-5; Newtownards rural district,

5111, 5115, 5037-44, 5052-3; County Down,

8436, 8451, 8509; Meath rural district (during

winter), 10099-106, 10122-8, 10186-7; Newry

rural district, 11494-501, 11608.

No security.—

County Armagh, 11078-80, 11141; Poyntpassa district, 10827-9, 10906-71.

County Down (Rathfriland), 11023-7, 11035-44;

Mayobridge, 11228-33; Warrenpoint and Bon-

brever, 11280-40, 11305-17, 11323-7.

County Antrim, 6737, 6823-37.

Security not due to decreased production of milk,

8503.

Insufficient quantity of milk for poor children due to

poverty, 445-6.

Difficulty of getting milk in urban districts, 3400-11.

Difficulty of rural labourers getting milk, 1006-10,

5273-93.

Get milk from the farmers for whom they work,

7422-8, 7496-7506, 8346-9, 8272, 11093-31,

11809-46; not otherwise, 11811, 11818.

Regular labourers get milk as part wages, 4433-9,

4506-4.

Changed relations between labourers and farm-

ers, 1006-17.

The labourer's independence of the farmer is

a cause of his difficulty in procuring milk.

8424, 4345-54, 5328, 5332, 5667-8, 3605,

3442, 10103-3, 11400-501.

County (County Meath), 4138-54.

Grass for labourers' cows: facilities given, 4285-95

(County Kildare): 11223-6 (Newry district). Not

given, 4138, 4158-74 (County Meath).

CAUSES OF SCARCITY. Due to the—

Operation of the Dairies Order, 864, 977-8, 1295-8, 1376, 3021, 2479, 3545-58, 4177-9, 4327-31, 4806-72, 4961, 6010-4, 8111-9, 8126-9, 10223-34, 10107-14, 10128-41, 10218-20, 10992.

SCARCITY OF MILK—continued.

Reports of Local Government Board Inspectors on this point, 33-48.
 Centre, 1399-1400, 2020-9, 3704, 4544, 4555-7, 4556, 8845-8, 9058, 9129-3.

See "Dairies Order, Application of the Order" for particulars concerning foregoing.

The Order has restricted the sale of milk because it does not apply to home butter makers, 11709-16; and milk producers, rather than come under the Order, resort to home butter making, 8790-2, 10728, 11456-7, 11713.

The Order has put some small men out of the trade, but has not affected the milk supply, 7453-5, 11290-93, 11453.

Consequences as a cause of scarcity: affirmative, 1265.
 Negative, 724-30, 967, 977a, 2474-45, 11076, 11441, 11617.

Cases where there is no scarcity and there are circumstances, 8773-8, 10789-98.

Cases where there is no scarcity and there is scarcity, 967, 2305.

Breeding from short-horned bulls of non-milking strain, 7173-6, 7323-6, 7461-8, 8430-1, 8699-92, 8821, 9131-4, 9333-54, 9504-85, 10435-4, 10436-1.
 Centre, 11509-10, 11921, 11761-84.

Further as to the alleged encouragement of beef at the expense of milk—see "Bulls."

Reply to the allegation that the Department's premium bulls are responsible for a decrease in the milk supply, 8455-43.

Difficulty of getting good milk cows, 1360, 1908.

The best milking cows are sold out of the country, 4158-6, 5708-18, 10692; or killed at the end of their milking season, 10692.

Distinction of the producer to sell retail; reasons therefor—

Bushiness of employees, 977a.

Red debts, or expected for nothing, 2475, 3304-6,

3424 (page 117), 4612, 8313.

Do not wish to have people coming about the houses, 8519.

Objection to come under the Dairies Order, 3479.

Distinction to carry on a small retail trade, 4907-12.

Lack of means of distributing the milk available, 8319-22, 4939-44.

Intermittent demand, 3603-35, 3643-4, 6015-26.

Exportation of milk as butter, 8424.

Rearing greater number of calves, 4173-4.

Decrease of tillage, 3641, 5763-5.

Increased cost of feeding stock, 12039-9.

Risks of carrying on the dairying trade, 2982, 2942, 3834-3.

Due to the ranching system, 2181-2.

The smallest standard is the half-pint, this makes the sale of half-penny-worth of milk unprofitable, and restricts the sale, 11708-9.

Alleged reduction of the milk supply attributed to seven specified causes (p. v.), 1367.

REMOVAL PROPOSED.

In Urban Districts.

The local authority could enter on the dairy business, or open milk depots, 3448-43, 3803.

Municipal dairy farm desirable if commercial milk did not keep up to standard, 6344-5.

Objections to municipalities producing or retailing milk, 6148-55, 6250-3.

Municipal milk distributing depots would be costly and unbusinesslike, 4565-70.

Milk depots in Newry would be a boon to milk workers, 11247-8, 11319, 11322-6.

Private enterprise in starting such depots is preferable to public management, 11346-51; but failing all else, it is the duty of the local authority to open a depot, 11319. The expenditure of public funds on such a project is justifiable, 11350-1, 11327.

SCARCITY OF MILK—continued.

What has been done by private enterprise by Lord Rosse in Burre—conditions previously existing, 5099-100; now existing, 5100.

Lord Rosse's dairy is a commercial undertaking, 5101-2, 5101-3, 6236.

Quantity and conditions of sale, 5091-8; price 2½d. a quart all the year round, 5131-6; only the best quality sold, 5119; methods adopted to produce the best quality, 5139-50.

The increased supply has created an enormously increased demand, 5160; the use of condensed milk has almost ceased, 5199.

Co-operative milk depots for towns, organized by farmers, 3669-88, 5738-43, 5773-33.

In towns like Nans, the Nans milk depot might be taken as a model, 4908-12, 4932-3.

Depot established by the W.N.H.A., 4875; to relieve scarcity among poor people, 4942-92.

Price charged, 4863, 4896-7, gratuitous distribution in necessitous cases, 4857; management, working, and expenses described, 4874-83, 4905, 4957-595, 4936-51.

Satisfactory results, 4853.

(Re the work of the Sineo Head depot, Dublin, for the supply of pasteurized milk for infants of poor people—see "Pasturization.")

How the problem was dealt with at Athlone, 3412-32, 3491-8.

This solution would meet the case of other towns similarly situated to Athlone, 3421-2.

Centre, 3827-40.

In Rural Districts.

Difficulty of establishing a rural district supply, 8448-51.

Creameries.

That creameries supply milk for domestic purposes, 965, 1913-6, 1049-52, 1067-9.

Inadequacy of creameries to sell, 2368-9, 4497, 4592, 4535-43.

Milk sold retail by creameries, 968, 3413-4.

Creameries are not milk shops, 3423.

Sale of separated milk by creameries, 1335-46, 10704-9, 10711-9.

Rules of co-operative societies do not forbid suppliers to sell milk for domestic use, 959-78, 2485.

Creameries willing to sell milk; no objection to its being made obligatory, 10703-9, 10784-8.

Arrangements should be made with creameries to sell milk to laborers, 2542-6.

Cow plot.

Provision of a cow plot or common grazing plot for laborers' cows.

Power of Estates Commissioners to reserve plot on sale of an estate, 2177.

Arrangements for use of the plot which has been reserved at Okeahatie, County Meath, 2193-2195: (for details, see "Aengus, Mrs. Robert.")

Criticism of the cow plot scheme, 3444-7, 4191-2, 5744-6.

Scheme adopted in Kells, 4146-8.

The scheme would be suitable for tenants of Union cottages, 4194-7.

Cows and grazing for laborers.

Co-operation by laborers to take a field and graze their cows on a common pasture, 5565-74.

Difficulties in the way of, 10164-7, 10176-80, 10199-215.

The State should provide grazing plots for respectable men who could purchase a cow, 10142-50.

Division of land among small holders, 2197-75.

Purchase of Kerry cows for laborers with the Department's funds, 3373-85.

Feasibility of the proposals, 3394-3403, 5682.

Provision of the old Irish cow preferable to goats in hilly districts of Counties Down and Antrim, 6024-8.

SCARCITY OF MILK—continued.

Breeding of milch cows.

The breed of dairy cows should be improved by use of bull of a milking strain, 2286-8, 2422-9, 2447, 10383-5, 10900, 7448-53, 12487-8, 7071-6, 8200-11, 8203-825, 1214-30.

Milk records essential to establish milk pedigree of bull calves, 7277-81.

Suggestion that the Department's premium be given to cows, not bulls, 5708; to prevent slaughter of good milkers, 3799-11.

What has been done in Denmark by using bulls of good milking strain, 7894.

For further particulars, see "Bulls."

Suggestion that farmers be induced or compelled to breed from the best portion of their herds, a suitable bull being provided, 8008-12, the farmer needs aid to tide him over the time when the cow is not in milk, 8390, 8462-5.

Goats.

Goats as a remedy for scarcity, 3481-60, 3494-6, 5547, 5660, 5708.

Objections to keeping, by Union cottagers, 10221-3.

And see "Goats."

District Council supply.

Rural District Council might, in cases of necessity, enter on the dairying business, 3450 (to be read with 3460-62).

Objections to Rural District Council milk depots, 4149-54, 5289, 5345-7.

Proposed subsidy to small farmers to guarantee a supply in his locality, 8028, 8041-50, 8571-5.

Proposed scheme whereby the District Council contracts with a farmer to supply and distribute milk in rural districts at a fixed rate, 2268-9, 3471-3, 5532-3, 10151-3.

Contributions towards cost to be made by the State, and from the rates, 5265.

Double if the District Council would be willing to work the scheme, 10154-6.

Objections to the Rural Council making a contract with a farmer to distribute milk at part cost of the rates, 8333-40.

Arguments for and against State or State aid.

Contributions from rates or taxes towards supplying a district with milk in which there is scarcity is justifiable, 6125, 8311-4, 11020-1, 11337.

Contribution from public funds towards cost of milk in necessitous cases advocated, 7943-5, 7959-62, 7980.

To reduce infantile mortality, 11218-7.

Prevention of tuberculosis is better than cure in animals, 11218-23.

Objections to State or State aid in providing milk for sections of the community, 3479-5, 3482-3, 3695-5706, 3947-9.

Private enterprise preferable to depots run by a local authority, 5226-34, 5248-7, 5673-9, 5670-1, 11140-2.

Milk depots under voluntary management (e.g., the New depot) the next best thing, 3283-5, 5280-8.

Feeling all else, it is the duty of the local authority to open a depot, 11719.

Statutory bodies preferable to voluntary co-operation, 2862.

General.

Public milk supply advocated, 1684, 1689.

Assistance of voluntary associations desirable, but not sufficient, 2284-6, 3528-68.

Whether the Dairies Order should apply to a farmer supplying milk to labourers, 5548-63.

A mere increase of the milk supply will not meet the difficulty of the poor man, 3885, 2871-2.

Compulsory sale of milk for fair price recommended, 5820-5, difficulties to be faced, 3949-5.

Extension of the English Allotment Act to Ireland desirable, 2862-7.

For subsidy for wheate milk, 5711. (See also "Wheate Dairying.")

Labourers should arrange with farmers to buy regularly, 3542.

SCARCITY OF MILK—continued.

Scarcity leads to the use of other foods injurious to the development of the race, 1126-65.

People suffer in health in consequence of scarcity, 8317-8, 10804-8.

Lameness due to lack of nutrition, 1691.

The majority of children coming into Newry hospital suffer from tubercular diseases, 12005, 12027; attributable to insufficient nourishment, 12004, 12004, 12006-12009.

The same is true of other patients, 12017-8, 12006-8.

SCARLATINA caused by infected milk, doubtful, 497.

SCHOOLS could be centres for distributing milk, but not distributing agents, 2944.

Objection by manager to school being used as a milk depot, 8570-84.

Milk might be distributed outside the schools, 5565-6.

Notices could be posted at, stating where milk could be obtained, 8323.

SEPARATED MILK.

Analysis of, 5327.

Sale and uses of, 2321-4, 3906-11.

Sale of, by creameries, 5535-39.

Proportion of, to the whole-milk supplied to the creamery, 3003-4.

Pasteurisation of, recommended, 484, 5425, 2423-3.

Dietetic value, 525, 1700-5, 2516-20, 3948, 3632.

Not suitable for children, even with added fats, 1721-3, 1116-7, 7708-7; not for nursing mothers, 4184, 7708-7.

Recommended as a food for adults, 4311-6, 11272-6.

Danger of fraudulent substitution of, for whole-milk, 7504-8.

Insufficient as a food for young calves, 784, 1040-1.

Lord Ashburn's views re, 3433-4, 3599-76.

Satisfactory results of feeding calves on, 4443-53, 4461-72.

Calves fed on, fetch good prices, 10710-62.

Use of, in conjunction with other foods, as a food for animals, 5527-31.

Not a cause of certain diseases in cattle, 786.

SHIELDS, REV. JOHN V. (Parish Priest of Sarnfield, County Down).

Scarcity of milk in country districts for part of the year, 8519, 8521, 8569; and people suffer in health in consequence, 8317-8.

The remedy is due rather to lack of means of distribution than to actual absence of milk, 8519-22.

Remedies suggested—subsidise small farmer to guarantee a supply in his locality, 8233, 8541-50, 8571-2, post notice at schools stating where milk could be obtained, 8123; milk might be distributed outside, not inside schools, 8565-6; would object to the school being made a milk depot, 8575-86.

Objections to Rural District Council making a contract with a farmer to distribute milk, at part cost of the rates, 8333-40.

Milk is not sufficiently appreciated as a food, 8324.

Its value should be taught in schools, and by pamphlets, 8325-7.

Efforts to secure greater cleanliness of milk deprecated, if they tend to lessen the present production, 8328-32, 8393-5.

Suggests that railway stations should have special milk depots, 8384.

SHIELDS, M., J.P. (representing the *Assymen of Bangor and District*: Member of the Agricultural Council).

The milk-yielding qualities of cows have decreased, 8419-3, 8420-9; in spite of higher quality of feeding, 8423-7; attributable to the introduction of Shorthorn bulls, 8420-1.

Need has been encouraged to the detriment of milk, 8421, 8488.

Would get back to the old milking straws, 8422-32.

The milk of a herd should not fall below standard, 8427-44.

SHEILS, M.—continued.

- Difficulty of procuring dairy hands, 8447-58; wages paid, 8478-82; suggests that the Government should send boys to farms instead of to industrial schools, 8447, 8483-5.
 Belfast milk has improved in quality since the strike, 8458-61, 8516-1.
 Criminality of adulterating milk with water, 8512.
 Good milk is worth 6d. per quart, 8513-4.
 Injury to the permanent dairyman by the "cuckoo" milkman, 8494.
 The local authority should have the right to inspect outside dairies, 8494.
 Objects to concrete floors for byres, 8465-6, 8491-8501.
 How pure milk may be reduced in quality, 8476.
 Cows are commonly killed after the season's milking, 8481-2.
 This might be checked by the Department offering inducements to dairymen to keep the best cows, 8480.

SHORTHORNS. Are cheaper than Red Lincolns and not inferior as milkers, 8406-14.
 Milk records of, at Albert Agricultural College, Glasnevin, 8426-28.
 The breeding of, is inimical to milk production, 8300-1. See also "Cows."
 In favour of, with a milk strain for breeding, 10026-8.
 Good milk of milking Shorthorns, 11734-72.

SKIMMED MILK for sale should be suitably labelled, 8002.
 Value of, as a food, 4964-7, 5054-20.

SLAUGHTER OF COWS COMPULSORY. See "Compensation."

SLUDGE, or slime, creamery. Disposal of, 3459-61.

SMALL, F. B. (Agriculturist, Foyntpassa, Co. Antrim).
 Has given up dairying because of difficulty of getting labour, 10859-6.
 The practice as to hiring labour near Newry, 10025-63.
 There is lack of milk among the working classes, 10667-9, 10666-71; milk not appreciated as a food, 10660-1.
 Loss of cattle by tuberculosis, 10673-88.
 If compensation for slaughter of tuberculous cows were paid, it would induce farmers to report them, 10643-9.
 The present day dairy cow is not as good as the cow of twenty years ago, 10859-90.
 Description of the old Irish cow, 10691.
 Shorthorns and Red Lincolns not good from the milking point of view, 10693-6.
 For milk, bulls of a milking strain should be used for breeding, 10920, 10902-6.
 In breeding now, milk is not considered, 10601.
 There are fewer cows in the country than formerly, 10998-9, 10972-44.

SMITH, J. L. (Principal Clerk, Public Health Department, Local Government Board, Dublin).
 Dairies, Cowsheds, and Milkshops Order, consolidating previous Orders, issued in 1908, 4.
 Duties imposed under Order relate to registration and appointment of officers, 7.
 Supplemented by a second Order, 1909, as to the appointment of veterinary inspectors, 7.
 Power of Local Government Board to issue Mandatory Orders requiring the appointment of officers, 8.
 Difference between registering and licensing cowkeepers and milk vendors, 13-15, 173-182.
 What registration involves, 16-17.
 Vendor of milk defined, 19; includes suppliers to caterers, 20; and caterers, if they sell milk, 120; position of farmer selling to his labourer, 21-23, 45-50, 138-139, 194-198.
 Desirability of making Dairies Order imperative, 24-25; and of administering the Order tactfully and gradually, 26, 101.

SMITH, J. L.—continued.

- Domestic effects of the Order, 27, 28, 29.
 Effect of Dairies Order in restricting milk supply; reports of Local Government Board Inspectors, 33-49.
 Refusal of Kilmallock R. D. Council to appoint officers under the General Order of 1909, 33-35.
 Milk products not covered by Dairies Order, 64-65.
 Statutory powers for inspection of cowsheds, etc., sufficient, 69-70.
 Enforcement of registration of milk vendors, 71-88; the administration of the Order must be left to the local authorities, 89-91.
 Policy of the Local Government Board as to authorising Urban Councils to inspect dairies outside their jurisdiction, 94, 102.
 No guarantee of uniform administration of Order, 104-108.
 Possible remedy for sale of dirty milk in towns, 170, 179-174.
 As to application of Order to every keeper of a cow, 125-126.
 Qualifications of by inspectors, 123-126.
 Suggests that definition of milk include butter, skim, and separated milk, 141, 179-177.
 Diseases caused by separated milk, 142-143.
 Necessity for clean space, light, and air in cowsheds, 147-153.
 No supervision of veterinary inspector's work, 161.
 Relations between veterinary inspectors and medical officers, 162-163.

STANDARD OF MILK—see "Milk, legal standard of."

STERILISATION OF MILK.

- By individual dairies (Dublin), 1070.
 For young children, 453, 459, 488.
 Indesirable, 5228-48.
 Should be avoided if possible, 3847-8, 3844.
 Injures food properties of milk, 6758-61, and renders it unfit food for sucklings, 6843-4, 6870-8.

STRIPPER COW. Definition of, 4479.

SUFFERN, ROBERT. (Of Oveston, County Antrim).
 Depreciation of milk-yielding quality of cows, due principally to the introduction of shorthorn bulls of a non-milking strain, 9333-54, 9354-85.
 No enhanced price for premium bull with a milking strain, 9356-7; the premium for a registered dairy bull should be increased, 9358-61.
 It is possible to breed a utility cow, i.e., good for milk and beef, 9363-3.
 To produce a good dairy cow, it is necessary to make a good milk cow with a bull of good milking strain, 9383.

SYMMERS, PROFESSOR W. ST. C. (Professor of Pathology, Queen's University, Belfast).
 Has made bacteriological examination of samples of Belfast milk, 6737-8, 6803.
 Results, 6738-48, 6761-3.
 States objections to the compulsory application of the Wild test to all persons in the milk trade, 6749-51, 6854-69.
 It might be applied in a particular case where typhoid was suspected, 6752-4, 6873-8.
 Milk as the source of diptheria outbreaks; preventive measures, 6755-7.
 Pasteurisation and sterilisation of milk injure food properties of milk, 6758-61; and render it unfit food for sucklings, 6843-4, 6870-8.
 Whether milk is injured by heating is problematical, but probable, 6760-6800.
 Tuberculin test; caution required in acting on results of, 6766.
 A reaction will be given where the tuberculous lesions are detectable, as well as active, 6768-8, 6806-9; this is undoubtedly true in the case of human beings, 6766-8.
 A reaction in a valuable cow is not a sufficient reason for destroying her, 6766.
 Exception made in the case of a cow with a tuberculous udder, 6784.
 Would, nevertheless, submit dairy cows to the test, 6769; but the time is not ripe for local authorities to require it to be done, 6770.

SYMMERS, PROF. W. ST. C.—continued

- Supports the claim of the Belfast Corporation to have power to inspect outside dairies, 6771-8, 6791-2, 6834.
- Recommends the bacteriological examination of milk generally, 6763, 6785; but this alone is not sufficient to safeguard the public health, 6790.
- Proposed standard of uncontaminated milk, 6765-5.
- Danger of material contamination to health, 6796.
- Tubercle bacilli are infective to man, 6810.
- Importance of the ingestion method of contracting tuberculosis, 6811-2.
- The greatest source of infection is from human being to human being, 6800.
- The chance of tubercle being conveyed to human beings through milk is small, 6836-42.
- No difference in the lesion in men and animals, 6812-4.
- Bovine bacilli are infective to man, 6815-4.
- Goats' milk is excellent milk, 6827.
- Danger of Malta fever from, 6828-30.
- Tubercle bacilli have been found in butter, 6834-5.
- Fat is a source of contamination of milk, 6845-6.
- Dust is not likely to convey typhoid bacilli, 6847-8.
- Believes typhoid carriers are common, 6850-5.
- Milk is a cause of summer diarrhoea, 6850-51.
- Persons should not be allowed to drink tubercular milk with a view to immunising themselves against tubercle bacilli, 6854-56.

T.

TALBOT, LADY, MILK INSTITUTE, MELBOURNE.

- Origin of. Established to reduce infant mortality by providing the sick infants of poor parents with pure, wholesome milk, 9704-7, 9715, 9720, 9860, 9888-9900, 9903.
- Pasteurised milk was used for the first year, afterwards, healthy raw milk, 9730, 9751-4.
- Action taken to ensure cleanliness of production, handling, and distribution, 9708.
- Milk bottled: temperature kept below 40 degrees Fahr.: milk delivered packed in jar, and householder supplied with an ice chest: children visited by nurses, who keep records and give instruction to mothers, 9708, 9756-7.
- Method of delivery, 9801-8.
- Milk is only supplied during the summer, 9708, 9756.
- Freedom of the milk from pathogenic bacteria, 9711-4.
- Tuberculous cows are excluded from the herd, 9713, 9733-4.
- Existence of "second" cows, i.e., cows apparently healthy, which give milk highly charged with cocci, 9713-4.
- The infant death-rate has decreased in districts where Talbot milk is supplied, 9856-4.
- Talbot milk costs 5 2d. per pint, 9715-6, 9791-9801.
- Commercial milk costs 3d. a pint, 9719, 9721-2.
- The arrangement between the milk producer, Mr. Hope, and the Institute is a strictly business one, 9725-32, 9844-55; the distribution is philanthropic, 9715, 9720, 9733-8.
- Names of patronesses, trustees, and committee of management, 9739.
- The Institute receives grants from the municipalities, the State, and private persons, 9743-5.
- Proposal of State Officers (Veterins) to establish Municipal milk depots, 9771-5.
- High death-rate among children attributed to faulty milk supply, 9771.
- Milk produced under faulty conditions, 9825-7.
- The Institute has had some effect in improving the conditions under which milk is produced, 9838-4; and it hoped the Municipality will take up and work the scheme, 9825-6.
- Need of a special milk supply for infants, 9915-9.
- TAUNTON, W. R. (Chairman of the Committee of the British Goat Society).
- Goats bred from milking strains required, 2346.
- Toggenburg and Anglo-Swiss goats are suitable for milking purposes, 2350, 2355-4.
- Milk eagerly, prize and health of goats, 2361-51.

TEA.

- Not nutritious, 1681.
- Used in consequence of scarcity of milk, 2106, 30688-98, 36604.
- You drinking habit, 11194, 12006, 33017-8; by children, 11206, 11606-9.

TENTH. Cause of bad. of children, 1726.

TENANT PURCHASERS.

- Increasing number of applications for loans by, for farm buildings, 1728-6, 1760-3.
- Suggestion that the Estates Commissioners advance money for cowsheds and dairies, 2378-81.

THOMPSON, JOHN A., F.R.C.V.S., J.P. (Veterinary Inspector of the Lurgan Urban and Rural Districts and Moura Rural District).

- Enforcement of the Dairies Order, 7912-6, 7922-6; consequent improvements, 7917.
- Urban authorities were inclined to prosecute their rural authorities, 7918-9.
- More supervision is required in rural districts to ensure compliance with the Order, 7917-62, 8006-5.
- Inadequate fines imposed on contravention, 7920-1.
- To increase the £10 compensation limit would induce the owner of the diseased animal to report it, 7927-30.
- Objects to a lay, but not to a professional, inspector from Belfast coming into his districts to inspect, 7932-3, 8017.
- The local officer could do all that is necessary in a case of complaint, 8006-21, 8054.
- Favors supervision and the appointment of the veterinary inspectors by a central authority, to secure uniform administration, 7935-8, 7960-1, 8033-42.
- Tuberculin test; reliability of, 7939-32, 8033-35.
- Outbreak of typhoid fever traced to milk infected by a carrier, 7943-8.
- Would not reduce the legal standard of milk below 8 p.p.m. of butter fat, 8048-53.
- THOMPSON, PROFESSOR W. H., M.D. (Professor of Physiology, Dublin University).
- Pure milk is an indispensable article of human diet, 1686.
- Composition and nutritive value of milk, 1618.
- Subtle nutritive property in milk, which remains in dried milk and buttermilk, but is injured by boiling, 1618-20, 1628, 1735-1736; not injured by steaming or centrifuging, 1656, 1669.
- Power of mothers to nurse their children depends on their own nutrition, 1620.
- No proper substitute for pure milk as a food for infants, 1620; dried milk the next best thing, 1647-50, 1659-70.
- Pasteurisation necessary to guard against diseased milk, 1629.
- Pure milk does not need pasteurising, 1629-30.
- Condensed milk not a good substitute for fresh milk, 1631.
- Dried milk is better than pasteurised milk; less liable to contamination, 1631-44; cost, 1645-6, 1651; liability to adulteration, 1651-2; on sale in Dublin, 1667-8.
- Need of producing pure milk, because treatment injures its nutritive value, 1675.
- Porridge and milk preferable to bread and tea as food, 1682.
- Advocate public milk supply, 1686, 1699.
- Nutritive value of buttermilk, 1696-8.
- Nutritive value of separated milk, 1700-5; not suitable for children, even with added fat, 1721-3.
- Inadequate supply of milk in childhood has an effect during the adult stage, 1718.
- Bad teeth in children; cause of, 1720.

THOMSON, DR. ROBERT, M.R. (Chairman of the Public Health Committee, Belfast Corporation).

- Officers appointed under the Dairies Order, 6865-71, 6892-40.
- Inadequate fines on convictions for adulterated milk, 6074-81.

THOMSON, DR. ROBERT—continued.

- Outbreaks of infectious disease in Belfast traced to milk, supplied from outside the city, 6061-3, 6063-4.
 Powers sought by the City authority to inspect dairies supplying milk from outside the city, 6061-3.
 Action of the Local Government Board in the matter, 6064-8, 6066.
 The outside dairies recent inspection by the Belfast Corporation, 6069-72; even when infectious diseases were suspected, 6093-6094, 6112; danger of delay under present procedure in stopping suspected milk, 6205-8.
 Approves of applying the Widal test to persons in the milk trade, 6136-11.
 Need of Local Government Board's supervision to ensure uniform enforcement of the Dairies Order, 6115-8.
 An unqualified man may make an efficient dairy inspector, 6119-3, 6224-31.
 Approval of compensation for animals slaughtered compulsorily, 6131-4, 6188-7.
 Advances licensing of milk parveyors, 6224-7, 6182-4, 6278-82.
 Milk parveyors should state periodically the sources of their supply, 6126-31.
 Condition of Belfast city dairies is satisfactory, 6138-41.
 Bacteriological examination of Belfast milk, 6144-7, 6191-7.
 Objects to municipalities producing or retailing milk, 6148-53, 6250-2.
 Power of Corporation to make outside inspection where disease is suspected, 6173-7.
 Tuberculous cows are sent from Dailin to Belfast for slaughter, 6186-90, 6206-13, 6242-9.
 Other causes of tuberculosis than milk, 6214-6.
 Use of preservatives in milk, 6230-3.
 The Public Health Committee have authorized their inspectors to prosecute without reference to the Committee, 6241.

TILLAGE.

- Essential to winter dairying, 742, 998-9.
 Furnishes labour and hampers disease from stock, 742, 822-3, 826-46, 8755.
 Reduced number of cows due to decreased area under, 5945-58.

TOWNS.

- Milk supply of, dependent on administration of the Order by local authority, 100.
 Removal of dairy cows outside, not advocated, 1374-8, 2255-74.

TRAIN-BORNE MILK.

- Use of refrigerating cars desirable, 487, 1066-9.
 Sanitary conditions of, 944-7, 1286.

TRIMBLE, DR. ANDREW, D.P.H., J.P. (Member of the Belfast Public Health Committee).

- Children of working people in Belfast do not get sufficient milk, 6292.
 Due to the labour conditions and limited means of the parents, 6297.
 Debauched physique the result, 6298-72.
 Condensed milk is not good for children, 6257-63.
 Dried milk is used to a limited extent in Belfast, 6264-7.
 Deprecation in quantity of stock by slaughter of calves, 6276-80.
 Immature calf's flesh is not a food, 6281-4.
 Numbers and value of cattle, springers and milkers, exported from Belfast, 1902 to 1911, 6285-91.
 The devaluation is that milk is rising in price, or reducing in quality, 6288.
 Importance of breeding from bulls of a milking strain, 6292.
 The Department should breed bulls to mate with the farmers' cows of good milking strain, 6298-5.
 Enacting legislation to prevent spread of disease by "carriers" needs modernizing, 6295-6300.
 Application of the Widal test to persons in the dairy trade desirable, 6301-4.
 Epi-theta carriers, 6328-32; the test for detecting such carriers, 6307-8.
 Typhoid carriers should be precluded from handling milk, 6309-43; persons suffering from tuberculosis are under disability, 6309, 6312.

TRIMBLE, DR. ANDREW—continued.

- Possibility of germs in milk being conveyed to the butter, 6313-21.
 Outbreak of typhoid probably due to butter, 6319-25.
 Would extend the Dairies Order to home butter-makers, 6319.
 Insufficient powers conferred on medical officers of health re infectious diseases in relation to milk, 6326-7.
 Advantages of licensing, instead of registering dairy-keepers, 6328-8.
 Sterilization of milk advisable, 6339-43.
 Need of Local Government Board supervision of locally appointed veterinary officer, 6348-50, 6358-64.
 Dirty milk as a serious danger to health, 6350-55, 6418-21.
 A cause of diarrhoea, 6406-10.
 Danger of tuberculosis from manual contamination of milk, 6322-5.
 Cleanliness in the homes necessary, 6415-7.
 Suggests that a standard of cleanliness in milk be fixed, e.g., a maximum number of bacteria per c.c., 6352, 6386-91.
 Certified and standardized milk likely to be too dear, 6365-7.
 The clinically diseased animal should first be eliminated, 6373-83.
 Housing of cattle tends to cause tuberculosis, 6385.
 Price of milk in Belfast, 6392-8.
 Oatmeal porridge next in value to milk as a food, 6402-7.
 Municipal Milk Fund, Belfast, 9511-9522.
 Fund not chargeable to rates, 9521; is dependent on voluntary subscriptions, 9527.
 Origin, 9512.
 Worked through the M.O.H. and the lady visitors of the Health Committee, 9513.
 Provides milk for infants of parents temperately in necessity, 9519, 9523.
 Milk is given to mothers also if necessary, 9525.
 The Fund is administered by trustees, 9530-1.
 Typical cases insisted, 9532.
- TUBERCULIN TEST.**
 Reliability of, 518-519, 1153-1161, 5591, 7939-42, 8023-32, 13134-46, 10435-46, 11643-8.
 Alleged failure of the test, 7456-72; possible explanation, 8066-6.
 Simplicity of, 523-553.
 A reaction does not indicate the amount of tuberculous present, 529, 2946, 11643-4.
 Compulsory application of the test proposed, 1522-5, 2937.
 Contra, 3770-60.
 Caution required in acting on results of test, 6796.
 A reaction will be given when the lesions are dormant, as well as active, 6766-8, 6803-2.
 This is undoubtedly less of human lungs, 6766-8.
 A reaction in a valuable cow is not a sufficient reason for destroying her, 6766.
 Exception made in the case of a cow with a tuberculous udder, 6766.
 As a precaution would submit dairy cows to the test, 6762.
 But the time is not ripe for local authorities to require it to be done, 6770.
 The veterinary inspector should have power to apply test in suspicious cases, 7178-80.
 Practical objections to the application of the test, 8893-93, 8938-72.
 Tuberculin should be placed at the disposal of farmers, 1488.
 Grant by Danish Government for application of, 3853-5.
 Application of, to Department's premium bulls rests with the County Committee, 5425-34, 6216.
 Suggested immunization by repeated inoculations of tuberculin, 1288-97.
 Reating cows may be bred from, 1477, 1484-9.
 Degree of danger of milk of reating cows which are not obviously tubercular, 538-9, 541, 3891, 11104-8.
 Milk of reating cows should be excluded from the milk supply, 547-9, 532, 911.

TUBERCULIN TEST—continued.

- Milk of a herd not reacting to the test should have a higher commercial value, 547.
- Tuberculin-tested herds; cases of, 4472-4817 (S. Dublin R. D.).
- Lord Somers's herd, Rrr, is tested, 5119, 5129, 505; milk is supplied at 2½d. a quart all the year round, 5181, as a commercial undertaking, 5203, 5224.
- Lack of public encouragement to have herds tested, 5179-83, 5200.
- Hospitals and Sanatoria, Dublin, do not obtain supplies from herds tested, 5000, 5300-1.
- Cattle should be bought subject to passing the test, 555-66.
- Difficulty of complying with this proposal, 5313-8, 5305-40, 7204-7.
- Cows can be bought in Dublin market subject to passing the test, 4785, 5290-5304, 5316-15.
- Cowher, 5315.
- Use of the test—to separate the sound from the unsound, 909.
- As to disposal of reacting cows, 911-951, 1448-37, 3886-95, 5840-6, 59464.
- Isolation of reacting cattle recommended, 368-76, 1487.
- Proportion of cows reacting, 912-26.
- All cows in Co. Antrim were at one time tuberculin-tested, 10997-11008, 11109-11; and the reactors were sold out of the district, 11504-6.

TUBERCULOSIS.

In Human Beings.

- Proportion of people affected by, 536.
- Causes of recovery, 545, 551.
- Is a progressive disease and should be checked in early stages, 549.
- Caused by infected milk, 876.
- Communicated direct from the cow, 498-9; may be communicated to calves, 514.
- May be caused by milk contaminated with manure, 6323-5.
- Tubercle bacilli; low temperature unfavourable to growth of, 445.
- Temperature required to kill, 498-1.
- Tuberculous cow, yielding tubercle bacilli, is dangerous to human beings and to other cows, 515, 7317.
- Other causes of tuberculosis in human beings than milk, 4314-6.
- Infectivity of human beings by having tubercle bacilli, 519-46; 6815-6; and of cattle by human tubercle bacilli, 519-25, 6802.
- Chief danger of, is by contagion, not from milk, 541, 6820, 6840.
- Importance of the ingestion method of contracting tuberculosis, 6811-3.
- The chance of tubercle being conveyed to human beings through milk is small, 6836-42.
- Dairymen should be specially educated as to the preventability of, 9034.
- Effect of Tuberculosis Exhibitions in teaching people of the infectivity of tuberculosis, 10997-8, 11200-11, 11220.
- Better as a cause of tuberculosis, 6826-5.

In Cattle.

- Comparative freedom of Irish dairy cattle from, 847-9, 1422-33.
- Prevalence of, 1908 to 1911 (Belmont district), 7371-7.
- Is on the increase, 7386-7.
- Danger of, in cattle increased by housing, 1411, 6385.
- Hereditary tuberculosis in cattle, 1975-9.
- Opinion that, in cows cannot be cured, 4768-71.
- Tuberculin-free herds. Encouragement of, by the Department, 2552.
- Cows of, South Dublin Rural District, 4772-4817.
- Grants should be given for breeding tuberculous free cattle, 1483.
- Experiments of the Chester Technical Instruction Committee in 1899, 5388-94.
- A "plum" may be eradicated from causes other than tuberculosis, 5390, 5850.

TUBERCULOSIS—continued.

Two methods of discovering tuberculosis—

- (a) By bacteriological examination of the milk and tracing the tubercular milk to the cow, 3603-22.
- (b) By applying the tuberculin test to all cows, 3603-22.

Tuberculosis in cattle should be scheduled by the Department, 216, 7322, 8071.

Tuberculous cows.

- Proportion of, 566-7.
- Disposal of, 850-7.
- Resisting to tuberculin test might be killed for butcher's meat, 1475-98.
- Disposal of reactors in America, 9785-7.
- Reactions do not necessarily give tubercular milk, 3891, 11104-8; but are liable to spread disease among other cows, 3891, 8133, 8183-99, 9286-90, 11107.
- Compulsory slaughter of clinically tuberculous cows advisable in owner's interest, 1441-6, 3377-81, 6274, 80.
- Proposed means of exterminating, 135, 502-4.
- Isolation sheds necessary as a means of stamping out tuberculosis, 5022.
- Best method of eradication described, 7313-4.
- To stamp out, reasonable compensation must be paid on compulsory slaughter, 1447, 5169-70, 4394-44, 7197-30, 8147-55, 10069-600, 10942-9. See also "Compensation for Cows compulsorily slaughtered." Conditions on which Department is prepared to help farmers stamp out, 5424.
- Restriction on slaughter of; must be a case of tuberculosis of the udder, 2704, 6184-4.
- Inspector should visit markets and farms to detect, 4705.
- Flesh of, not necessarily unfit for human consumption, 516-7, 569-76, 912-50, 948-51.

Tuberculosis of the Udder.

- Cause with, are the greatest danger to public health, 501, and should be destroyed, 507, 5103, 6573.
- Estimated number of cows with, 948-4, 1238-50.
- Proportion of tuberculous cows which suffer from, 4705-24.
- Difficulty of diagnosing, 1241, 1460-1501.
- Mutilation of the udder is not reliable as a means of detecting, 5091-4.
- Procedure in Dublin in case of suspected, 1281-5; in Berkshire, 2609-75; Belfast, 7076-91, 7197-104, 7325-300, 7345.
- Procedure for slaughter of cow with, 2905-11.
- Veterinary inspector has no power to prevent disposal of cow with, immediately on discovery, 682-6.
- For power to slaughter or isolate in case of suspicion, 1341-4, 1434-6.
- Medical Officer of Health should be notified on discovery of cow with, 899.
- Cow without apparently diseased udder may give tubercular milk, 5601, 7293-7.
- As to condemnation of cows with diseased udders, not necessarily tuberculous, 5025, 5614-7.

TUBERCULOSIS PREVENTION (I.) ACT, 1908.

- S. 18 empowers destruction of a milk cow with tuberculous udder, 56, 1348-51.
- S. 19 transfers power on health authorities to inspect cowherds outside their districts, subject to approval of the Local Government Board, 98.
- Policy of Local Government Board in re Section 19 criticised, 1281-92. And also see Inspectors.
- Proposed amendment of Section 18, for extermination of all tuberculous cows, 150, 8804-5.
- Need of protection of veterinarians ordering slaughter in a case of mastitis which is not tubercular mastitis, 1228-44.
- Animals slaughtered under, 8886-8, 8886.
- Re compensation. See "Compensation for Cows."

TULLAMORE. Scarcity of milk, in, 5400-10.

TYPHOID BACILLI.

- Difficulty of isolating, from milk, 454.
- Post-mortem temperature required to kill, 441-3, 448.

TYPHOID BACILLI—continued.

Temperature favourable to growth of, 444.
Not conveyed by dust, 6947-8.
Cows not susceptible to infection by, 444.

TYPHOID CARRIERS.

Existence of, 229-33, 349, 4094, 6310.
Are common, 6920-3.
Approximate number of, 388-8, 1167-71.
Unconscious of their condition, 407-9.
Presence of, indicated by the Widal test, 360, 1163;
non-carriers may react, too, 1170.
Reaction to the Widal test three months after
recovery from typhoid would raise suspicion
that patient was a carrier, 392.
May not previously have had typhoid fever, 384, 389.
Danger of, to public health, 393-3, 419-5.
Variable excretion of typhoid bacilli by, 1179.
Duration of danger, 366, 392-8, 1173-7.
Should be precluded from handling milk, 6309-11.
The dairy trade would assist to prevent employment
of, 3344-5.
Need of amended legislation, to prevent spread of
disease by carriers, 6296-309.
See also "Widal Test."

TYPHOID FEVER. Caused by infected milk, 374.

TYPHUS CARRIERS.

Existence of, 1845.

TYBONE County. Satisfactory conditions in, re
milk cattle and milkers, 738-97.

U.

UNITED IRISHWOMEN. Supplying milk for domestic
use by, 1013.

V.**VALUATION of new byres.**

Deterrent effect of increasing valuation on erection
or improvement of byres and farm buildings,
5658.
That poor low valuation be not raised for (say)
five years, 5823, 9168-9.

VETERINARY INSPECTORS. See "Inspectors."

VON STIEGLITZ, MISS E. (Lady Superintendent of
the County Down Infirmary and Newry
Hospital).

The Newry children are poorly nourished; neither
they nor adults are accustomed to the use of milk,
11991-12002, 12017-8.
The majority of children coming to the hospital suffer
from tubercular disease, 12008, 12067; attributable
to insufficient nourishment, 12004; the same is true
of other patients, 12006-8.
The mothers do not realise the value of milk as a
food, 12009-12, 12032.
Instruction is given in Domestic Economy
lectures, 12029-3.

W.**WAGES.**

Agricultural wages. Low rate of, in Ireland, 1906-7,
1034; compared with those of Denmark, 1036.
For dairy workers, 8478-80, 10494-6.
Wages and standard of living have risen in last 25
years, 3335-2.

WARNOCK, JOHN, M.A. (Assistant Principal,
Marlborough Street Training College Glasgow).
(Re treatment of milk supply in Denmark.)
Genesis of the Copenhagen Milk Supply Co.,
Denmark, 8560.

Rules for supplying milk to the Company: deal with
feeding, culling, and housing of cattle, treatment
of milk, health of employees, etc., 8560.
Frequent veterinary inspection by Company's
surgeons, 8565.

WARNOCK, JOHN—continued.

Milk constantly kept at low temperature, 3691.
Federation not approved, 3992.
Milk bottled for distribution, 3993; method of
delivery, 3995.
Cleaning of milk vessels, 3994.
Infants' milk: preparation of, 3996; and delivery of,
3998.
The Bosch milking pail for reducing temperature of
milk; merits of, 3997.
Prices of Company's milk, 3999; price paid by
Company to producer, 4000.
Growing public demand for good milk, 4001.
Company is not subsidised, 4002-6; bears certain
expenses of production, 4009-12; and has its own
ice-making plant, 4016-20.

WARRANTY. Should be ignored in prosecutions for
adulteration of milk, 194-5.

WATSON, ANDREW, M.B.C.V.S. (Chief Veterinary
Inspector of the Borough of Dublin).

Non-professional assistants; qualifications of, 1188-
89; efficiency of, 1187-91.
Statistics as to cows, cowsheds, milking-shops, and milk-
milkers, 1192-6.
Good feeding and quality of Dublin dairy cows, 1353-
61.
Means taken to ensure registration of milk-milkers,
1187; penalties imposed for neglect to register,
1198-9; advocates licensing, instead of registering,
1200-1; probable effect of licensing, 1208, 1226-66;
conditions of licensing, 1203-12, 1407.
Housing of cows; improvements effected under
existing powers, 1216-1221, 1275-3.
Inspection of cows in Dublin, and measures taken
to protect public health, 1222-24, 1254-68. Staff
available for inspection, 1241-1253.
Destruction of cows with tubercular udder; procedure,
1245-51.
Slaughter of clinically diseased cows recommended,
1443-5, 1458.
Suspected animals kept under observation, and milk
destroyed, 1248-51, 1434-7.
Compensation for cows slaughtered; for higher limit
than £10, 1255-6, 1257-7, 1460-4; inducement
required for owners to report diseased animals,
1467; compensation should depend on conditions,
1299.
Tubercular mastitis of the udder. For protection of
veterinary inspector dealing with suspected, 1219-
44, 1361-3.
Diseases of the udder, 1361-6; diagnosis of, 1469-1203.
Comparative freedom of Irish cows from tuberculous
of the udder, 1423-33, 1490.
Precautions and precautions to ensure cleanliness of
cows and milkers, 1262-80, 1267-9; inadequate
penalties imposed by magistrates, 1263-5, 1276,
1494-96. Unsuitable sites for dairies, 1234, 1270.
Refusal of L. G. Board to allow Dublin Corporation
officials to inspect dairies outside their jurisdiction,
1281-6; Dublin cows on grass during summer are
not then under inspection by Corporation officers,
1287-92, 1270-1, 1206-8.
Municipal authority should have power to make
inspections outside the jurisdiction, 1237, 1284-6; as
in England, 1218-9, with beneficial results, 1232-
32. Likelihood of conflict with local authority,
1470-4.
Country milk received in Dublin; cases inspected as
to condition, 1308-11; and adulteration of milk,
1333-8, 1344-7; but not examined for tubercle
bacilli, 1307, 1343-7; sample should be sent to
bacteriologist, 1312-6, 1321. Inspection of milk
for hospitals, 1005-7.
Tuberculous milk in Dublin; no protection at present
against, 1275-84, 1468-8.
Causes for reduction of the milk supply, Dublin,
operation of Dairies Order, creameries, slaughter
of milk cows, etc., 1233-1266, 1274-6, 1291-1403,
1408-16, 1222-51, 1601-4.
Inspection of milk-shops, 1330-43.
Cowkeeper should keep a register of names and
addresses of his attendants, 1273-3.
Tuberculin test; slaughter of cows reacting to, 1448-
1458; using flesh for human consumption, 1475-82,
1491-8, 1287; recommends grants for tuberculous-
free cattle, 1463-9. Compulsory application of test

WATSON, ANDREW, M.R.C.V.S.—*continued*.

- by inspector desirable, 1512-5. Whether repeated examinations of tuberculin give immunity, 1558-97.
Cows supplying the Bazarium not tested, 1558-9, 1559.
Methods of handling milk, if advisable, should be enforceable; mere recommendations not sufficient, 1518-20.
Removal of dairy cows outside Dublin not advisable, unless under exceptional circumstances, 1573-5.
Profits of the milk trade, 1575-84.
Dairies and Cowsheds Order. Antiseptics recommended re flooring, 3650-63; cleaning milk vessels, 3673-2; storage of milk, 3673-6; destruction of suspected milk on payment of compensation, 3677-8; conditions as to manure heaps, 3679-83; regulations re dairy yards required, 3684-5, 1226-9; pigs should be excluded from dairy yards, 3687-3103.
Infectious disease outbreaks; list places like those given under the Glasgow Police Amendment Act, 3350, 3384-7.

WEBB, DR. ELLA (of Dublin).

- Children of Dublin artisans do not get enough milk, 4054-7; reason, 4058-9, 4064-75.
Condensed milk: different qualities and danger of use of, 4060; uses, 4064-8.
Milk substitutes should have fat percentage marked on them, 4063.
Contamination of milk in poor homes and shops, 4070-82.
Cooling milk, preferable to pasteurisation, 4090.
Pasteurisation in bottles is better than in bulk, 4091.
Fats required for infants, 4097-4103.
Infantile diarrhoea; causes of, 4104.
Feeding of nursing mothers, 4108-15.

WHITE SCOUR. Loss by, 773-775, 5400. Where prevalent, 773, 935-937. Loss prevalent now, 3338-3401.

WIDAL TEST.

- (And see also "Typhoid carriers.")
Existence of typhoid carriers indicated by, 393, 1163; but non-carriers may react, 1178.
Operation painless and harmless, 394, 395, 391, 1173.
One examination is generally sufficient, 397; but not exclusive, 399.
Test should be carried out by a skilled bacteriologist, 398-401.
Practicability of applying the test, 399-402.
Proposed application of the test to persons engaged in producing and vending milk; in favour of, 228-234, 282, 654, 1162, 3594, 4758-60, 4984-9, 6110-11, 6229-301.
Doubtful as to necessity of subjecting all persons in the milk trade to the test, 6476-82, 6691-2, 8092-8702.
Professor Symmers gives reasons against compulsory application of the test, 6749-51, 6854-62.
The test might be applied in a particular case where typhoid was suspected, 6753-4, 6817-8, 6683-4, 8703, 9132-7.
Difficulty of applying test to dairy hands, who are constantly changing, 3793-6.
Not necessary to apply test to persons feeding cattle, 453.
Small number of persons who would be under disability to handle milk, 1173-3.
Would not interfere with the milk trade, 3348.

WILLIS, T. F. (Treasurer of the Newry Agricultural Show).

- The poor find difficulty in procuring milk at Newry, 11870-80.
Advocates placing a general milk shop in each ward, 11881.
This could best be done by private enterprise, 11886; failing that, by the Council, 11893-3.
The working classes do not appreciate the value of milk as a food, 11384, 11385-90.
Instruction to mothers on the subject desirable, 11393-6.
Encouragement of dairy cattle by the Newry Agricultural Show; method of awarding prizes, 11411-24.

WILSON, A. POOLE (Inspector of Dairying, Department of Agriculture, Ireland).

- Steps taken by creamery managers to ensure delivery of clean milk, 2286.
Difficulties in the way of a manager rejecting dirty milk, 2397, 2397-425, 2635-6.
Assurance given by Department of Agriculture to managers in the matter, 2388.
Efforts made to eliminate dirty milk, 2393.
Department has no power to interfere with hygienic conditions of a creamery, 2399-30.
Department's instructions visit creameries under a voluntary scheme, 2400; number of creameries visited, 2404-7; reports made and inducements offered, for good management, 2407-48.

CREAMERIES.

- Open during winter, 2409-11.
Sale of milk retail by, 2412-4.
Treatment of milk after reception at, 2415-7.
As a means of disseminating disease, 2418.
Facilities for cleaning suppliers' vessels at, 2426-8, 2690-3.
Sludge or effluent; disposal of, 2430-41.
Registration of, under the Dairies Order, 2435-6; and Factories Act, 2467-8.
Licensing of, 2460-70.
Effect of, in diminishing milk supply for domestic purposes, 2474-85.
Proposed uniform code of rules for managers to ensure hygienic conditions, 2547.
Plans for building, 2638-73.
Geographical distribution of, 2678.
Pasteurisation, temperature and period, 2415-6, 2419-20; as a safeguard against disease, 2418.
Number of creameries pasteurising, 2421-4, 2449-53.
Universal pasteurisation desirable, 2425, 2432; is a check against stale milk, 2420, 2440-4, though not against dirty milk, 2427-31. As affecting quality of butter, 2435, 2616-24. Compulsory in Denmark, 2436-8. Compulsion recommended, 2439, 2538-39; cost involved, 2444-5, and footnote, p. 80, 2475-9.
As a means of destroying tubercle bacilli, 2570-80.
Presence of tubercle bacilli in butter and cheese, 2494.

DAIRIES AND COWSHEDS ORDER.

- Should apply to vendors of separated, skim, and butter-milk, 2471-3.
Effect of, on milk supply to creameries, 2636-9.
Milk sent by rail, 2487-94; exportation of, to England, 2514-5; rates for carriage of, 2507-9.
Testing of, for sediment and fermentation, 2570-5.
Grading of, 2594-9.
Areas of diminished milk supply, 2581-2.
Dried milk; experience of, 2612-3.
Cleaning milk; centrifugal force better than straining, 2550-5.
Milk yield; calculation of, 2596-13.
Separated milk; value of as a food, 2516-26; sale and uses of, 2621-4, 2636-11.
Buttermilk and separated milk; proportion of, to whole milk supplied to creameries, 2523-4.
Grafts.
Number of, 2524, 2589.
Value of milk of, compared with cow's milk, 2525, and footnote, p. 84.
Condensed MILK.
Manufacture of, 2536-6, and footnote. No outside supervision over milk, 2538-9.
Use of stale milk, 2539-43. Use of separated milk, 2674-6.
Vessels; use of suitable designs, 2420, 2397, 2399-3, 2649-57.
Preservatives; use of, 2535-8.
Winter milk, encouragement of by Department, 2550-61.
Tuberculin tested herds, encouragement of by Department, 2582.
Reluctance of farmers to sell whole milk, 2478-9, 2503, 2594-6.
Tuberculous cows supplying milk; elimination of, 2574-8.
Milk records. Associations keeping, 2597-8.
Census of cows from 1900 to 1911; footnote, p. 87.

WINTER DAIRYING.

- Village essential for, 742, 966-9.
 Soil and climate of Ireland suitable for, 1000.1.
 Absence of dairying in the Midland belt, 966.5.
 Essential for maintenance of Irish butter markets, 966.7.
 Encouragement of production of winter milk by Department, 3556.61.
 Resolution for subsidy for winter milk, 8711.
 Value of winter milk under best circumstances, 4472-82, 4503-4.
 Profitable when cow gives 520 gallons, 5503, 7326-9.
 The season of calving as an influence in the yield of milk, 5505-6.
 Financial results, 5509-31.
 Other considerations in favour of, 5514-6.
 Should be encouraged: loss to the country through absence of, 9347-9, 9696-7.

WOOD, DR. W. ATKINSON, M.D., M.B. (Melb.), D.P.H. (London) (Practising in the City of Melbourne).

The Lady Taitot Milk Institute, Melbourne.

- Origin of. Established to reduce infant mortality by providing the sick infants of poor parents with pure wholesome milk, 9704-7, 9715, 9720, 9690, 9698-9700, 9702.
 Pasteurized milk was used for the first year; afterwards, healthy raw milk, 9707, 9731-4.
 Action taken to ensure cleanliness of production, handling, and distribution, 9706.
 Milk bottled: temperature kept below 40 degrees Fahr.; milk delivered packed in ice, and homeholder supplied with an ice chest; children visited by nurses, who keep records and give instruction to mothers, 9706, 9774-7.
 Method of delivery, 9701-8.
 Milk is only supplied during the summer, 9708, 9730.
 Freedom of the milk from pathogenic bacteria, 9711-4.
 Tuberculous cows are excluded from the herd, 9713, 9728-4.
 Existence of "roset" cows; i.e., cows apparently healthy which give milk highly charged with cocci, 9713-4.
 The infant death-rate has decreased in districts where Taitot milk is supplied, 9690-4.
 Taitot milk costs 5.2d. per pint, 9715-8, 9791-9801.
 Commercial milk costs 2d. a pint, 9719, 9721-2.
 The arrangement between the milk producer, Mr. Hope, and the Institute is a strictly business one, 9723-32, 9644-55; the distribution is philanthropic, 9715, 9720, 9731-4.
 Names of patronesses, trustees, and committee of management, 9729.
 The Institute receives grants from the municipalities, the State, and private persons, 9740-5.
 Proposal of State Officers (Victoria) to establish municipal milk depots, 9771-8.
 High death-rate among children attributed to faulty milk supply, 9771.
 Milk produced under faulty conditions, 9693-7.
 The Institute has had some effect in improving the conditions under which milk is produced, 9623-4; and it is hoped the Municipality will take up and work the scheme, 9628-9.
 Need of a special milk supply for infants, 9615-9.
 Fat content of milk is affected by unequal periods of milking, 9706-10.
 Arrangements for medical attendance on the poor in Melbourne, 9746-7.
 Objections to pasteurization of milk; injures the milk, retards spores, encourages the production of dirty milk, is liable to putrefy, 9749-70; but pasteurization of milk for infants is desirable where there is doubt as to the cleanliness of the milk, 9738-61, 9764-6, 9826-8.
 Disposal of rejected cows in America, 9705-7.
 Rejecting cows are a source of infection, 9758-60.
 There is no shortage of milk, 9616-22.
 Stopped of cleanliness; bacterial content, 9627-32, 9711-13.
 Fewer bacteria in machine, as compared with hand-, milked milk, 9708, 9835-42.
 Sources of contamination of milk, 9605-88.

WOMEN'S NATIONAL HEALTH ASSOCIATION have established milk depots at Nassau, 4875; Carlow, 4884-6.
 Do., St. Peter's Road, Dublin, for the sale of pasteurized and humanized milk, 4952-5. (For particulars see "Pasteurization.")

WORKMEN'S COMPENSATION ACT as a cause of scarcity of labour, 1017-1020.

WORKS, BOARD OF. Make loans for cowsheds, 1734-7, 1770-80, and for creameries, 1741-9, conditions, 1737-45.
 Minimum loan, 1732-9.
 Do not provide stock plans for cowsheds and mature pigs, 1875-16.

WRIGHT, REV. W. (Presbyterian Minister at New-townards, Co. Down, and Vice-Chairman of the North Down Agricultural Society).

- The milk yield of cows has been reduced by the introduction of Shorthorn bulls, 9389-92, 9621.
 Doubts the possibility of restoring the milking qualities of Shorthorns, 8658.
 In giving premiums for bulls, no regard is paid to the milk pedigree, 8698, 8699-9603.
 Milk records should be kept, and bulls of milking strain be encouraged, 8698-9603.
 Other causes of deterioration are (1) the custom of dairymen killing off the milkers at end of the milking season, 8696-9; (2) the export of the best dairy cows to Great Britain, 8695.
 Suggests that farmers be induced or compelled to breed from a portion of their herds, a suitable bull being provided, 8695-12; the farmer needs to be told him over the time while the cow is not in milk, 8690, 8692-3.
 Prizes might be offered at Shows for good milking cows, 8618-20.
 No scarcity of milk in the district, 9606, 9613-7, 9649-5.
 No special difficulty in getting dairy workers, 8692-4.
 Cattle foods. Need of securing the purity of, 8699-31.
 Suggestion as to breeding a utility cow, i.e., for milk and beef, 8692-5.
 Necessity of having milking strain on the side of the cow and the bull illustrated, 8635-6.
 Value of keeping milk records in removing any impression as to which are the best milk-yielding cows, 8629-7.

Y.

- YOUNG, JOHN (Cowkeeper and Milk Vendor, Inchicore, Co. Dublin).
 Declines Order not responsible for reducing milk supply in Dublin, 9704.
 Licensing dairymen; in favour of, 9706-8, 9789-8.
 Value of milk as a food appreciated by artisan class, 9711-30.
 No suspicion of cattle when on grass outside the city, 9732-7.
 Supervision necessary to ensure cleanliness of milkers, 9738-50.
 Increased cost of cow-keeping in recent years, 9731-49, 9736-55.
 Objection to compulsory application of the tuberculin test, 9770-80.
 Full compensation should be paid by the State for cows slaughtered in the public interest, 9761-5, 9835-9, 9841-6.
 Application of the Widal test to detect typhoid carriers; dairy hands are constantly changing, 9761-6.
 Register of addresses of employees; no objection to keeping, 9777-9.
 Scarcity of efficient labour, 9806-6.
 Liability of employer to have milk tempered with by employee, 9821-32, 9806-11, 9804-81.
 Cattle Insurance; premiums, 9835-42.
 Milk records not kept in Dublin, 9843-9.
 People will not trouble to fetch milk, 9818, 9822.
 Small men with families are more suitable than societies for vending milk, 9840-1, 9870-84.
 Objections to getting city milk supply from the country, 9880-8, 9869-73.

